

# CONFERENCE GUIDE



2024

PAN AMERICAN  
CERAMICS CONGRESS  
and FERROELECTRICS  
MEETING OF AMERICAS  
(PACC-FMAs)

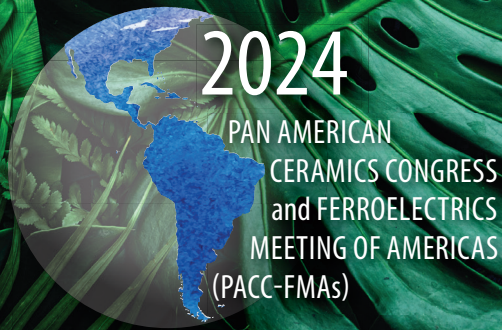
**APRIL 7–11, 2024**  
**HILTON PANAMA**  
**PANAMA CITY, PANAMA**

The  
American  
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Society  
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# WELCOME

## PAN AMERICAN CERAMICS CONGRESS MEETING CHAIRS



**Raj Bordia**  
Clemson University



**Sylvia Johnson**  
Johnson Consulting,  
NASA (retired)

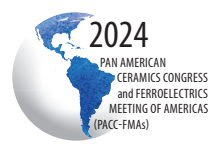


**Sanjay Mathur**  
University of Cologne,  
Germany

## FERROELECTRICS MEETING OF AMERICAS CHAIR



**Amar Bhalla**  
University of Texas at San Antonio



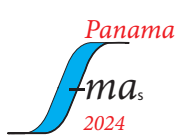
### About the Pan American Ceramics Congress (PACC)

Ceramics and glass research, technology development, and commercialization have thrived in the Americas for many years, with developments accelerating rapidly. Contributions to design and engineering of these materials had led to widescale application in the energy, aerospace, healthcare, communication, infrastructure, transportation, environmental, and other industries. The contribution to improving conditions and solving problems throughout the world has been substantial.

In 2022, the first PACC conference was held jointly with the Ferroelectric Meeting of Americas (FMAs) to facilitate interactions in and among the countries of the Americas and to provide an insight into the work being done in these countries for others around the world. The 2024 PACC will also be jointly held with the FMAs.

The goal of this conference is to bring together a wide variety of experts from academia, industry, research institutes, and laboratories from around the world to discuss recent developments and technical challenges in the research, development, engineering, manufacturing, and applications of ceramic and glass materials. The congress will provide a collegial forum for information exchange on the current status and emerging trends in various technologies in the American continents (countries in South, Central, and North America). A critical goal of this conference is to foster collaborations between and among the various countries as well as with the rest of the world. A crucial part of this effort is to involve students at all levels and young researchers so that they have the contacts and experience to thrive professionally throughout the geographical region.

The technical program will consist of invited and contributed talks as well as poster sessions to allow for the wide dissemination and discussion of research and development. Plenary talks will showcase collaborations among research and development efforts in various countries. Opportunities for students and young professionals to meet with leaders in the ceramics and glass field will be provided. Education programs in various areas will be discussed, and examples of real career paths of professionals in the Americas will be presented to help all involved in the field explore new opportunities.



### About the Ferroelectrics Meeting of Americas: FMAs

The field of ferroelectrics, as well as related phenomena and novel electronic materials development, which introduced new cross-coupled effects like multiferroics and bioferroics to the scientific community, are beginning to integrate with emerging scientific areas around the world. Due to various factors, it is especially important to accelerate such communications to the scientific community in the developing countries of the Americas.

To facilitate and accelerate our objectives, we brought together representatives from several Central and South American countries working in the areas of ferroelectrics and related materials research to organize a series of meetings called the Ferroelectric Meeting of Americas (FMAs). The meetings are planned to be held with regular frequency so researchers in this field can communicate and interact with each other, and develop cooperative and collaborative research programs in the Americas with other interested international partners.

The first FMAs was held in conjunction with the International Meeting on Ferroelectricity in San Antonio, Texas, in September 2017. In this context, we included ferroics-related research activities from the Americas and aimed to stimulate the research environment of ferroics-related collaborative research at various universities and institutes from the participating countries of the Americas.

The second FMAs was held jointly with the Pan American Ceramics Congress (PACC) in Panama City, Panama, in July 2022. It brought together researchers from academia, industry, and government laboratories to share their knowledge in the field and to present the development of novel applications of ferroelectricity in various interdisciplinary and cross-coupled research areas.

The 2024 FMAs is pleased to once again be held jointly with PACC in 2024 at the Hilton Panama, Panama. The conference program may include some special topical areas for interested participants. The peer-reviewed and accepted papers presented at the meeting will be published in a special volume of International Journal of Ferroelectrics.



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## FINAL PROGRAM

MONDAY	1 – 12
TUESDAY	13 – 30
WEDNESDAY	31 – 38
THURSDAY	39 – 40

### RELATED ORGANIZATIONAL ACTIVITIES:

Marcelo Stachiotti – Argentina

Valdirlei Freitas – Brazil

Ivair A. Santos – UEM, Brazil

L.F. Cotica – UEM, Brazil

Ducinei Garcia – UFSC, Brazil,  
(science education and technology)

Jose S. Guerra – UFU, Brazil

Ary Hoyas – Colombia (smart and  
energy recovery novel materials)

Ximena Velasquez Moya – Colombia,  
(student leadership)

Londono Badillo – Columbia

Gian Guzman – Costa Rica

Juan Munoz Saldana – Mexico

Eleicer Ching Prado – Panama

Ram Katiyar – Puerto Rico

Aiping Chen – USA

Chonglin Chen – USA

G. Srinivasan – USA

Steven Tidrow – USA



# Welcome from The American Ceramic Society (ACerS)

The ACerS community is open to all, and we're happy to have you with us. ACerS values diverse and inclusive participation within the field of ceramic science and engineering. We strive to promote involvement and access to leadership opportunity regardless of race, ethnicity, gender, religion, age, sexual orientation, nationality, disability, appearance, geographic location, career path or academic level.

If you are a new member or joining us for the first time, please visit the ACerS registration desk to learn more.

For all guests, if you need access to a nursing mother's room or have other special needs, please ask us at the ACerS registration desk. For childcare services, please check with the hotel concierge for a listing of licensed and bonded caregivers.

We hope you enjoy the conference and want you to know that all individuals are welcome at ACerS conferences and events.

## MEETING REGULATIONS



Cell phones  
silent

During oral sessions conducted during Society meetings, unauthorized photography, videotaping, and audio recording is strictly prohibited for two reasons:

- (1) conference presentations are the intellectual property of the presenting authors and as such are protected, and
- (2) engaging in photography, videotaping, or audio recording is disruptive to the presenter and the audience.

Failure to comply may result in the removal of the offender from the session or from the remainder of the meeting.

Note: The Society may engage photographers to photograph sessions for marketing and promotional purposes.



No photography/  
recording

### MEETING REGULATIONS

The American Ceramic Society is a nonprofit scientific organization that facilitates the exchange of knowledge meetings and publication of papers for future reference. The Society owns and retains full right to control its publications and its meetings. The Society has an obligation to protect its members and meetings from intrusion by others who may wish to use the meetings for their own private promotion purpose. Literature found not to be in agreement with the Society's goals, in competition with Society services or of an offensive nature will not be displayed anywhere in the vicinity of the meeting. Promotional literature of any kind may not be displayed without the Society's permission and unless the Society provides tables for this purpose. Literature not conforming to this policy or displayed in other than designated areas will be disposed. The Society will not permit unauthorized scheduling of activities during its meeting by any person or group when those activities are conducted at its meeting place in interference with its programs and scheduled activities. The Society does not object to appropriate activities by others during its meetings if it is consulted with regard to time, place, and suitability. Any person or group wishing to conduct any activity at the time and location of the Society meeting must obtain permission from the Executive Director or Director of Meetings, giving full details regarding desired time, place and nature of activity.

**Diversity Statement:** The American Ceramic Society values diverse and inclusive participation within the field of ceramic science and engineering. ACerS strives to promote involvement and access to leadership opportunity regardless of race, ethnicity, gender, religion, age, sexual orientation, nationality, disability, appearance, geographic location, career path or academic level. Visit the registration desk if you need access to a nursing mother's room or need further assistance. For childcare services, please check with the concierge at individual hotels for a listing of licensed and bonded child care options. The American Ceramic Society plans to take photographs and video at the conference and reproduce them in educational, news

or promotional materials, whether in print, electronic or other media, including The American Ceramic Society's website. By participating in the conference, you grant The American Ceramic Society the right to use your name and photograph for such purposes. All postings become the property of The American Ceramic Society. During oral sessions conducted during Society meetings, unauthorized photography, videotaping and audio recording is prohibited. Failure to comply may result in the removal of the offender from the session or from the remainder of the meeting.

**Registration Requirements:** Attendance at any meeting of the Society shall be limited to duly registered persons.

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Final determination of the suitability of any information, procedure or products for use contemplated by any user, and the manner of that use, is the sole responsibility of the user. Expert advice should be obtained at all times when implementation is being considered, particularly where hazardous materials or processes are encountered.

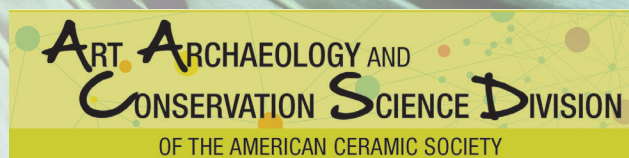
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# CONFERENCE GUIDE

## PLENARY SPEAKERS

MONDAY, APRIL 8, 2024 | 8:30 A.M.

### PROFESSOR OLIVIA A. GRAEVE



**Olivia A. Graeve**, Jacobs Family Professor in the Department of Mechanical and Aerospace Engineering, Director of the CaliBaja Center for Resilient Materials and Systems (<http://resilientmaterials.ucsd.edu/>), and Director of the Program in Materials Science and Engineering

Title: *Materials for Extreme (and Space) Environments: Crystallography and Properties*

**Abstract:** The idea of living on Mars or the Moon has been a staple of science fiction since the 19th century. However, if this sci-fi dream were to ever become reality, what would it be like to live there? Conditions make living on Mars extremely challenging. In particular, materials needed for such extreme environments need to be discovered and designed. In this talk, we will present an overview and current research on ceramic materials, especially their crystallography, for potential uses at extreme environments, including ultra-high and ultra-low temperatures, impact, and radiation. These research efforts build on significant international collaborations of the CaliBaja Center for Resilient Materials and Systems, a bi-national effort between UC San Diego and the Universidad Nacional Autónoma de México. A short discussion on student exchange opportunities, such as the ENLACE summer research program, will also be described.

### DR. MANVENDRA DUBEY



**Manvendra Dubey**, Laboratory Fellow at US Department of Energy's (DOE) Los Alamos National Laboratory (LANL). His PhD at Harvard and postdoc at SRI-International elucidated radical-molecule reaction mechanisms and advanced stratospheric ozone photochemical models.

Title: *Greenhouse Gases Observations 1957-2100: Past, Present & Future*

**Abstract:** Dr. David Charles Keeling's precise CO<sub>2</sub> observations at the remote Mauna Loa site discerned its global rise that is attributed to emissions from human activities. His Keeling curve is the observational framework to examine anthropogenic climate change that has expanded to other greenhouse gases (GHGs) and monitoring techniques. The accelerating GHG rise and the heat absorbed by them led to concerns about climate change that have exacerbated. My lecture will:

Trace how multiple long-term atmospheric CO<sub>2</sub> observations (in situ surface, and total column from ground and satellites) have helped quantify that vegetation and ocean soak up half of the human CO<sub>2</sub> emissions and elucidate regional fluxes (national to Amazon).

Describe international agreements that slowed the rise of halocarbons and strengthening policies to reduce CH<sub>4</sub>, CO<sub>2</sub>, and N<sub>2</sub>O emissions. Highlight how novel CH<sub>4</sub> observations are helping constrain emissions (at Four Corners, dairies and cities)

Discuss the future trajectory of CO<sub>2</sub> and monitor efficacy of decarbonizing efforts and carbon credits. Stress that positive carbon-climate feedback poses a risk, and their early detection is key to mitigation. In closing I will point to decarbonization efforts in ceramics production and use in durable goods, energy efficient buildings, power, and pipeline systems.

### STEVEN C. TIDROW, PH.D.



**Steven Tidrow**, an Inamori Professor of Material Science and Engineering within the New York State College of Ceramics (NYSCC) at Alfred University where he has served since 2015.

Title: *Identifying Opportunities in Education: Commonalities Using Illustrations*

**Abstract:** Identifying opportunities and implementing strategies that grow the education, including science, technology, engineering, and mathematics (STEM), opportunity tree can be challenging. Through observing data and identifying, visualizing and verbalizing, commonalities of the data, the lynchpins for improving education can be determined and addressed. For local communities, implementation of appropriate strategies to address the lynchpins should/must initially provide a win for buy-in of each constituent and simultaneously provide a high return on investment for administrators. Strategies addressing lynchpin commonalities not only enable the local community; they can impact and enable regional, national and world communities. For STEM education, a significant lynchpin occurs in the 6th to 8th grade range and results in disparity toward underrepresented groups. Inspiring the minds of youth can result in improved student learning outcomes, additional investments obtained through return on investment, and increases in educational efficiency. Several examples are utilized identifying lynchpins and solutions that have enabled youth and have provided a high return on investment for local, regional, state, and national governments. Ultimately, through positive and integrated feedback, enhancement of student learning outcomes occur while simultaneously the "effective" cost of education reduces.



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)

## SCHEDULE AT GLANCE

	TIME	LOCATION
<b>SUNDAY, APRIL 7, 2024</b>		
Registration	4:00 p.m. – 7:00 p.m.	Starbay Foyer
Welcome Reception	5:30 p.m. – 7:00 p.m.	Infinity/Pool Deck
<b>MONDAY, APRIL 8, 2024</b>		
Registration	7:30 a.m. – 5:00 p.m.	Starbay Foyer
Opening Session	8:30 a.m. – Noon	Starbay 3
Morning Break	10:10 a.m. – 10:40 a.m.	Starbay 1 & 2
Lunch Provided	Noon – 1:30 p.m.	Starbay 1 & 2
Technical Sessions	1:30 p.m. – 5:00 p.m.	Various
Afternoon Break	3:10 p.m. – 3:40 p.m.	Starbay 1 & 2
Poster Session	5:30 p.m. – 7:00 p.m.	Starbay 1 & 2
<b>TUESDAY, APRIL 9, 2024</b>		
Registration	7:30 a.m. – 5:00 p.m.	Starbay Foyer
Technical Sessions	8:30 a.m. – Noon	Various
Morning Break	10:00 a.m. – 10:30 a.m.	Starbay 1 & 2
Lunch Provided	Noon – 1:30 p.m.	Starbay 1 & 2
Technical Sessions	1:30 p.m. – 5:00 p.m.	Various
Afternoon Break	3:10 p.m. – 3:40 p.m.	Starbay 1 & 2
Conference Dinner	6:30 p.m. – 8:30 p.m.	Starbay 1 & 2
<b>WEDNESDAY, APRIL 10, 2024</b>		
Registration	8:00 a.m. – Noon	Starbay Foyer
Technical Sessions	8:30 a.m. – Noon	Various
Morning Break	10:00 a.m. – 10:30 a.m.	Starbay 1 & 2
Free Time	Noon - 5 p.m.	Various
<b>THURSDAY, APRIL 11, 2024</b>		
Registration	8:00 a.m. – Noon	Starbay Foyer
Technical Sessions	8:30 a.m. – Noon	Various
Morning Break	10:00 a.m. – 10:30 a.m.	Starbay 1 & 2





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# CONFERENCE GUIDE

## SPECIAL EVENTS

**SUNDAY, APRIL 7**  
**INFINITY/POOL DECK**

### **WELCOME RECEPTION**

Network with colleagues at this reception. Enjoy food, drink and networking with your colleagues at this kick-off event.

**5:30 P.M. – 7:00 P.M.**

**MONDAY, APRIL 8**  
**TUESDAY, APRIL 9**

### **LUNCH BOX TO GO**

Grab your Lunch Box to Go in Starbay 1 & 2 and take it to your room, by the pool or gather informally in any of the PACC FMA program space. Enjoy this informal lunch on both days as a part of your conference registration fee.

**NOON – 1:30 P.M.**

**MONDAY, APRIL 8**  
**STARBAY 1 & 2**

### **POSTER SESSION AND RECEPTION**

Enjoy some food and drink as you network with colleagues and check out the scientific posters and presentations.

**5:30 P.M. – 7:00 P.M.**

**TUESDAY, APRIL 9**  
**STARBAY 1 & 2**

### **CONFERENCE DINNER**

Enjoy dinner while having a chance to network with colleagues and hear more about the PACC-FMAs conference!

**6:30 P.M. – 8:30 P.M.**

**WEDNESDAY, APRIL 10**  
**COST- \$125**

### **SLOTH SANCTUARY AND AERIAL TOUR**

The tour includes the private round trip ground transportation, English speaking guide, bottle of water and park admission/fees. You will get to go through the Sloth Sanctuary and Nature Labs and take a gondola ride that will offer a unique perspective of wildlife in the area including a chance to see a wide variety of nesting birds, sloths and several species of monkeys!

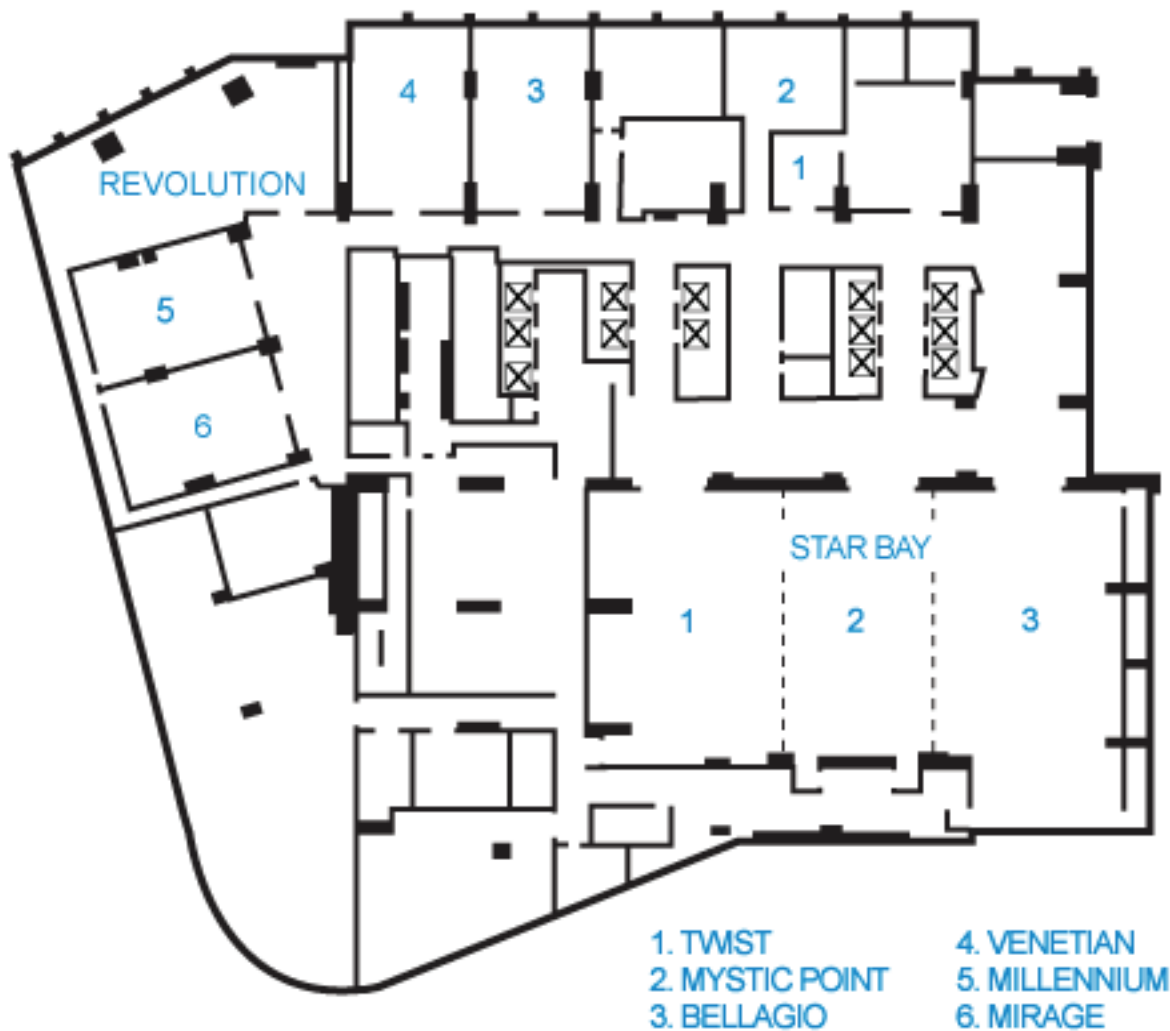
**1:00 P.M. – 6:30 P.M.**



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)

## HILTON PANAMA MEETING ROOMS

### HILTON PANAMA - LEVEL B / Nivel B





The cover features a vibrant green background with large, detailed images of tropical leaves like Monstera and palm fronds. A semi-transparent globe is positioned on the left, showing the Americas in blue. The year '2024' is prominently displayed in white at the top left. The event title 'PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)' is written in white text over the globe. The words 'CONFERENCE GUIDE' are printed in large, bold, green letters on the right side.

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# CONFERENCE GUIDE

## SYMPOSIA ORGANIZERS

2024 PROGRAM CHAIRS:

**PACC:** Raj Bordia, Clemson University  
Sylvia Johnson, Johnson Consulting, NASA (retired)  
Sanjay Mathur, University of Cologne, Germany

**FMAs:** Amar Bhalla, University of Texas at San Antonio

### FERROELECTRICS MEETING OF AMERICAS

Amar Bhalla, University of Texas at San Antonio, USA; Avadh Saxena, Los Alamos National Laboratory, USA; Jose A. Eiras, Federal University of Sao Carlos, Brazil; Ruyan Guo, University of Texas at San Antonio, USA

### PACC1- FUNCTIONAL CERAMICS FOR ENERGY AND ENVIRONMENT

Henry A. Colorado, Universidad de Antioquia, Colombia; Mangalaraja Ramalinga Viswanathan, Universidad Adolfo Ibáñez, Chile; Dileep Singh, Argonne National Laboratory, USA; Carlos E. Castano, Virginia Commonwealth University, USA; Federico Smeacetto, Politecnico di Torino, Italy; Arulraj Arunachalam, Universidad Tecnológica Metropolitana, Santiago, Chile; Afonso Rangel Garcez de Azevedo, Universidade Estadual do Norte Fluminense, Brazil

### PACC2- ADVANCED CERAMICS AND COMPOSITES

Mangalaraja Ramalinga Viswanathan, Universidad Adolfo Ibáñez, Santiago, Chile; Carlos Mauricio Fontes Vieira, Universidade Estadual do Norte Fluminense, Brazil; Nicolas Maximiliano Rendtorff, Centro de Tecnología de Recursos Minerales y Cerámica, Argentina; Pandiyarajan Thangaraj, Indian Institute of Information Technology, Design and Manufacturing, Andhra Pradesh, India; Bai Cui, University of Nebraska-Lincoln, Lincoln, Nebraska, USA

### PACC3- DENSIFICATION AND MICROSTRUCTURAL EVOLUTION IN CERAMICS DURING SINTERING

Rajendra K. Bordia, Clemson University, USA; Héctor Camacho Montes, Universidad Autónoma de Ciudad Juárez, Mexico; Dachamir Hotza, Federal University of Santa Catarina (UFSC), Brazil;

### PACC4- BIOCERAMICS AND BIOCOSITES

Roger Narayan, North Carolina State University, USA; Aldo Boccaccini, University of Erlangen-Nuremberg Institute of Biomaterials, Germany

### PACC5- ADVANCES IN CEMENTS, GEOPOLYMERS, AND STRUCTURAL CLAY MATERIALS

Waltraud M. Kriven, University of Illinois at Urbana-Champaign, USA; Henry A. Colorado L., Universidad de Antioquia, Colombia; Oscar Jaime Restrepo Baena, National University of Colombia, Medellín, Colombia; Ary Alain Hoyos Montilla, National University of Colombia; Flávio de Andrade Silva D.Sc., Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Brazil; Ruy A. Sá Ribeiro, INPA-National Institute for Amazonian Research, Brazil

### PACC6- ADVANCEMENTS IN REFRACTORY CERAMICS: INNOVATION, PERFORMANCE, AND SUSTAINABILITY

Dana Goski, Allied Mineral Products, USA; Vânia Regina Salvini, SOLVE High Temperature Ceramics, Brazil; Victor Carlos Pandolfelli, Federal University of São Carlos, Brazil

### PACC7- SCIENCE AND TECHNOLOGY OF GLASS, GLASS-CERAMICS, AND OPTICAL MATERIALS

Danilo Manzani, University of São Paulo, Brazil; Marcos de Oliveira Junior, University of São Paulo, Brazil; Douglas Faza Franco, São Paulo State University, Brazil; Doris Möncke, Alfred University, USA;

### PACC8- PROCESSING AND MANUFACTURING TECHNOLOGIES AND MATERIALS FOR A SUSTAINABLE FUTURE

Surojit Gupta, University of North Dakota, USA; Vania Salvini, Federal University of São Carlos, Brazil; Troy Ansell, Naval Postgraduate School, USA; Manoj Kumar Mahapatra, University of Alabama at Birmingham, USA

### PACC9- MATERIALS APPROACH TO ART, ARCHAEOLOGY, AND ARCHITECTURE IN THE AMERICAS

Christina Bisulca, Detroit Institute of Arts; Henry Colorado, Universidad de Antioquia; Fumie Iizuka, University of Missouri; Molly McGath, Mariner's Museum and Park

### PACC10- 2D MATERIALS: SYNTHESIS, PROPERTIES, AND APPLICATIONS

Christopher E. Shuck, Rutgers University, USA; Andreas Rosenkranz, University of Chile, Chile; Arun Thirumurgan, University of Atacama, Chile

### PACC11- ADDITIVE MANUFACTURING OF CERAMICS AND COMPOSITES

Xuan Song, University of Iowa, USA; Yiquan Wu, Alfred University, USA; Henry A. Colorado, Universidad de Antioquia, Colombia; Dachamir Hotza, Federal University of Santa Catarina, Brazil

### PACC12- CERAMICS AND MATERIALS EDUCATION AND CAREERS IN THE AMERICAS

Sylvia M. Johnson, Johnson Consulting, NASA (retired), USA; Darryl P. Butt, University of Utah, USA; Henry Colorado, Universidad de Antioquia, Colombia





## ANALYTICAL INSTRUMENTS

- Dilatometers
- Hot Disk (TPS)
- Thermal Conductivity
- Glass Properties



## HEAT WORK MEASUREMENT

- Pyrometric Cones
- TempCHEK
- TempTAB
- PTCR

## MATERIALS TESTING

- Thermal Properties
- Physical Properties
- Mechanical Properties
- 100+ ASTM Test Procedure







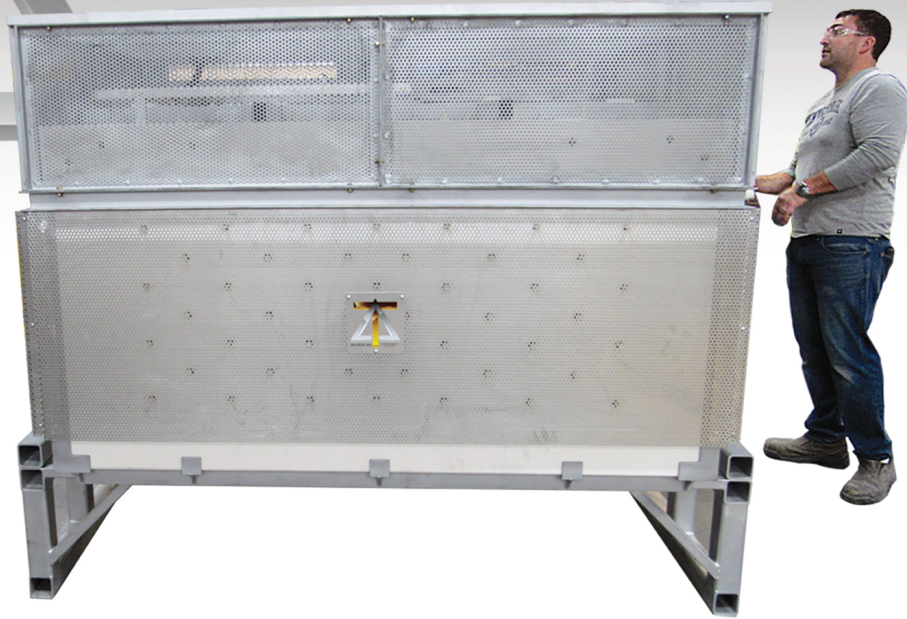
# TECHNICAL SESSIONS BY SYMPOSIUM

Sessions	Date	Time	Location
<b>PLENARY SESSION AND OPENING REMARKS</b>	April 8	8:30 AM - 12:00 PM	Star Bay 3
<b>CO<sub>2</sub> REDUCTION FORUM</b>			
CO <sub>2</sub> Reduction Forum	April 8	1:30 PM - 5:00 PM	Bellagio
<b>FERROELECTRICS MEETING OF AMERICAS (FMAS)</b>			
FMA- Novel applications and device concepts using various ferroics and multiferroics for the applications in bio-components, multifunctional device concepts	April 8	1:30 PM - 5:00 PM	Star Bay 3
FMA- Ferroics, bio-ferroics, multiferroics, bio-multiferroics, cross-coupled, and secondary ferroics I	April 9	8:30 AM - 11:50 AM	Star Bay 3
FMA- Ferroics, bio-ferroics, multiferroics, bio-multiferroics, cross-coupled, and secondary ferroics II	April 9	1:30 PM - 4:50 PM	Star Bay 3
FMA- Growth of crystals, processing of materials and characterization, structure-property relationships, and thin films - Dielectric, piezoelectric, pyroelectric properties	April 10	8:30 AM - 12:00 PM	Star Bay 3
FMA- Simulation, modeling, and design of novel ferroics and meta-electronic materials - Theory, first principle calculations, phase transitions, and critical phenomena	April 11	8:30 AM - 12:20 PM	Star Bay 3
<b>PACC1 - FUNCTIONAL CERAMICS FOR ENERGY AND ENVIRONMENT</b>			
PACC1 - Functional Ceramics for Energy and Environment	April 8	1:30 PM - 4:00 PM	Mirage
PACC1 - Functional Ceramics for Energy and Environment	April 9	8:30 AM - 9:50 AM	Mirage
PACC1 - Functional Ceramics for Energy and Environment	April 9	10:20 AM - 12:10 PM	Mirage
<b>PACC2-ADVANCED CERAMICS AND COMPOSITES</b>			
PACC2 - Advanced Ceramics and Composites	April 9	1:30 PM - 4:40 PM	Mirage
PACC2 - Advanced Ceramics and Composites	April 10	8:30 AM - 10:50 PM	Mirage
<b>PACC3 - DENSIFICATION AND MICROSTRUCTURAL EVOLUTION IN CERAMICS DURING SINTERING</b>			
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Sintering of nanostructured materials	April 8	1:30 PM - 3:40 PM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Sintering of nanostructured materials	April 8	3:40 PM - 4:10 PM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Novel sintering processes	April 9	8:30 AM - 10:30 AM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Novel sintering processes	April 9	10:30 AM - 11:20 AM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Modeling and simulation of sintering	April 9	1:30 PM - 3:40 PM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Microstructural evolution and properties	April 9	3:40 PM - 4:50 PM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Microstructural evolution and properties	April 10	8:30 AM- 10:30 AM	Millenium
PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Microstructural evolution and properties	April 10	10:30 AM - 11:40 AM	Millenium

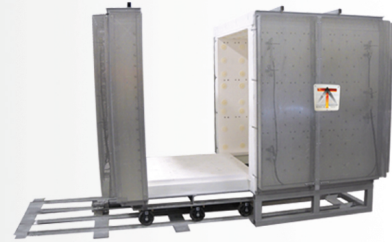




# Deltech Furnaces



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# TECHNICAL SESSIONS BY SYMPOSIUM

Sessions	Date	Time	Location
<b>PACC4 - BIOCERAMICS AND BIOCOMPOSITES</b>			
PACC4 - Bioceramics and Biocomposites I	April 10	8:30 AM - 10:30 AM	Venetian
PACC4 - Bioceramics and Biocomposites II	April 11	8:30 AM - 10:00 AM	Venetian
<b>PACC5 - ADVANCES IN CEMENTS, GEOPOLYMERS, AND STRUCTURAL CLAY MATERIALS</b>			
PACC5-Advances in Cements, Geopolymers, and Structural Clay Materials: Metakaolin and Phosphate-based Geopolymers	April 8	1:30 PM - 3:10 PM	Portofino
PACC5-Advances in Cements, Geopolymers, and Structural Clay Materials: Cementitious Materials and SCMs	April 8	3:30 PM - 4:30 PM	Portofino
PACC5 - Advances in Cements, Geopolymers, and Structural Clay Materials	April 9	8:40 AM - 10:30 AM	Portofino
<b>PACC6 - ADVANCEMENTS IN REFRACTORY CERAMICS: INNOVATION, PERFORMANCE AND SUSTAINABILITY</b>			
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 8	1:30 PM - 3:30 PM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 8	3:30 PM - 5:20 PM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 9	8:30 AM - 10:30 AM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 9	10:30 AM - 12:00 PM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 9	1:30 PM- 3:30 PM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 9	3:30 PM - 5:00 PM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 10	8:30 AM - 10:30 AM	Revolution
PACC6 - Advancements in Refractory Ceramics: Innovation, Performance and Sustainability	April 10	10:30 AM - 12:00 PM	Revolution
<b>PACC7 - SCIENCE AND TECHNOLOGY OF GLASS, GLASS CERAMICS, AND OPTICAL MATERIALS</b>			
PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramic Properties I	April 9	1:30 PM - 2:30 PM	Portofino
PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramic Properties II	April 9	3:00 PM - 4:40 PM	Portofino
PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramics Technologies I	April 10	8:30 AM - 10:30 AM	Portofino
PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramics Technologies II	April 10	10:30 AM -11:10 AM	Portofino



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)

## TECHNICAL SESSIONS BY SYMPOSIUM

Sessions	Date	Time	Location
<b>PACC8 - PROCESSING AND MANUFACTURING TECHNOLOGIES AND MATERIALS FOR A SUSTAINABLE FUTURE</b>			
PACC8 - Processing and Manufacturing Technologies and Materials for a Sustainable Future	April 9	8:30 AM - 11:50 AM	Ocean 1
PACC8 - Processing and Manufacturing Technologies and Materials for a Sustainable Future	April 9	1:30 PM - 4:40 PM	Ocean 1
<b>PACC9 - MATERIALS APPROACH TO ART, ARCHAEOLOGY, AND ARCHITECTURE IN THE AMERICAS</b>			
PACC9- Materials Approach to Art,Arch, and Architecture in the Americas: Multianalytical Approaches in Archaeology	April 8	1:30 PM - 3:40 PM	Venetian
PACC9- Materials Approach to Art,Arch, and Architecture in the Americas: Study of Technology to Reconstruct Behaviors	April 8	3:40 PM - 5:10 PM	Venetian
PACC9- Materials Approach to Art,Arch, and Architecture in the Americas: Historic and Contemporary Collections	April 9	8:30 AM - 9:50 AM	Venetian
PACC9- Materials Approach to Art,Arch, and Architecture in the Americas: Study of Stone Tools and Ornaments	April 9	9:50 AM - 12:20 PM	Venetian
PACC9- Materials Approach to Art,Arch, and Architecture in the Americas: Museum Collections: Policy, Preservation, and Research	April 9	1:30 PM - 4:40 PM	Venetian
<b>PACC10 - 2D MATERIALS: SYNTHESIS, PROPERTIES, AND APPLICATIONS</b>			
PACC10 - 2D Materials: Synthesis, Properties, and Applications	April 8	1:30 PM - 4:50 PM	Vitri
PACC10 - 2D Materials: Synthesis, Properties, and Applications	April 9	8:30 AM - 11:20 AM	Vitri
<b>PACC11 - ADDITIVE MANUFACTURING OF CERAMICS AND COMPOSITES</b>			
PACC 11: Additive Manufacturing of Ceramics and Composites: AM processes for ceramics and composites	April 9	1:30 PM - 4:30 PM	Vitri
PACC 11 Additive Manufacturing of Ceramics and Composites: Novel applications of ceramic AM	April 10	8:30 AM - 9:40 AM	Vitri





# TECHNICAL SESSIONS BY SYMPOSIUM

Sessions	Date	Time	Location
<b>PACC12 - CERAMICS AND MATERIALS EDUCATION AND CAREERS IN THE AMERICAS</b>			
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- K - 12/Undergraduate	April 9	8:30 AM - 10:20 AM	Bellagio
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- Undergraduate	April 9	10:20 AM - 11:00 AM	Bellagio
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- Graduate	April 9	11:00 AM - 12:00 PM	Bellagio
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- Innovative Approaches	April 9	1:30 PM - 3:00 PM	Bellagio
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- Humanitarian	April 9	3:20 PM - 4:00 PM	Bellagio
PACC 12: Special Symposium: Ceramics and Materials Education in the Americas- Historical Perspectives	April 9	4:00 PM - 4:40 PM	Bellagio
Career Talks	April 10	8:30 AM - 12:10 PM	Bellagio



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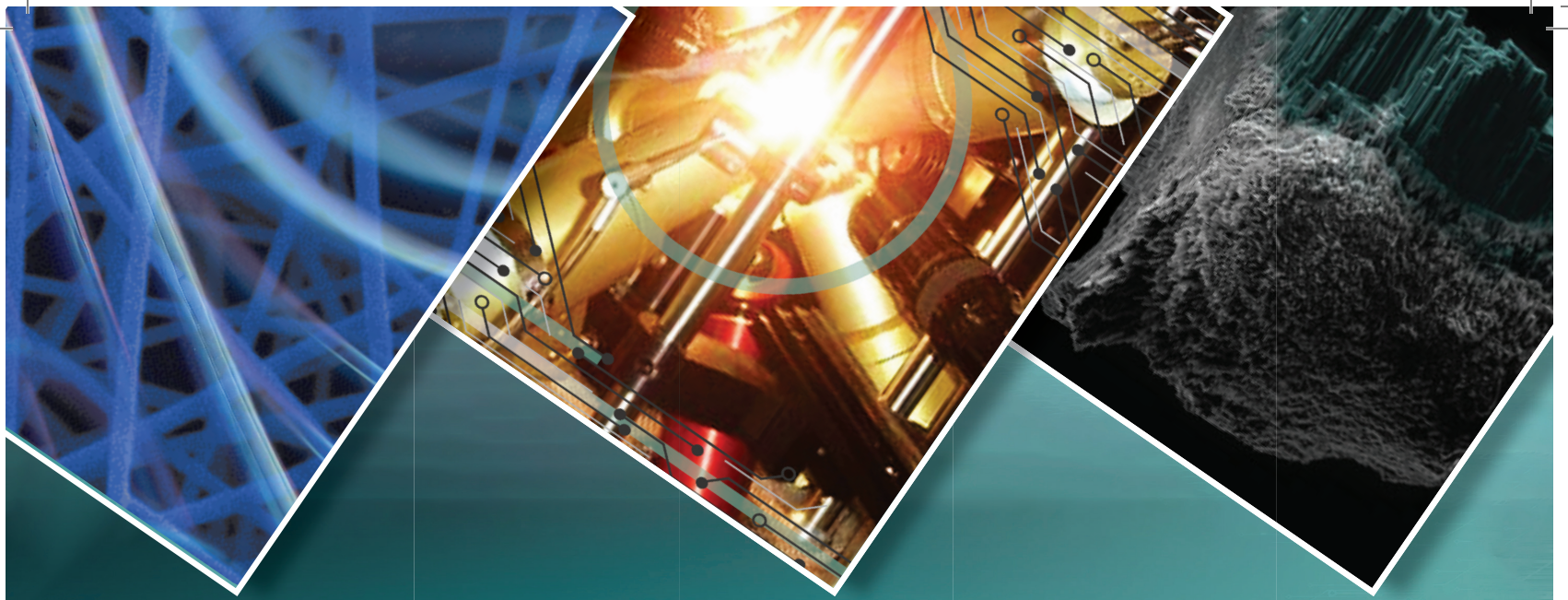
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Petrochemical	Foundry
Copper	Aluminum



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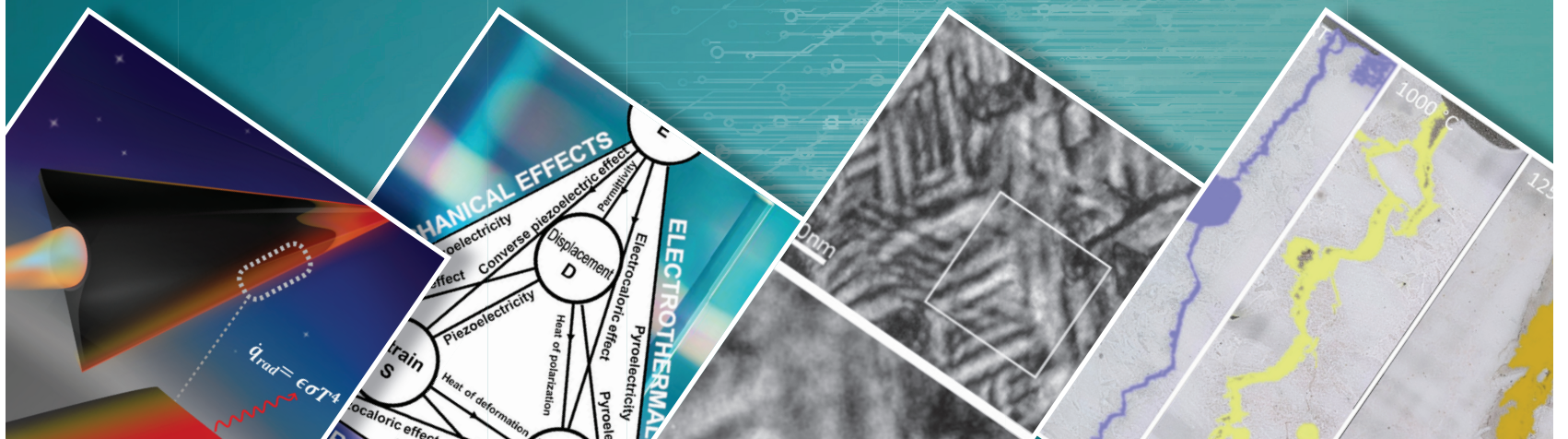






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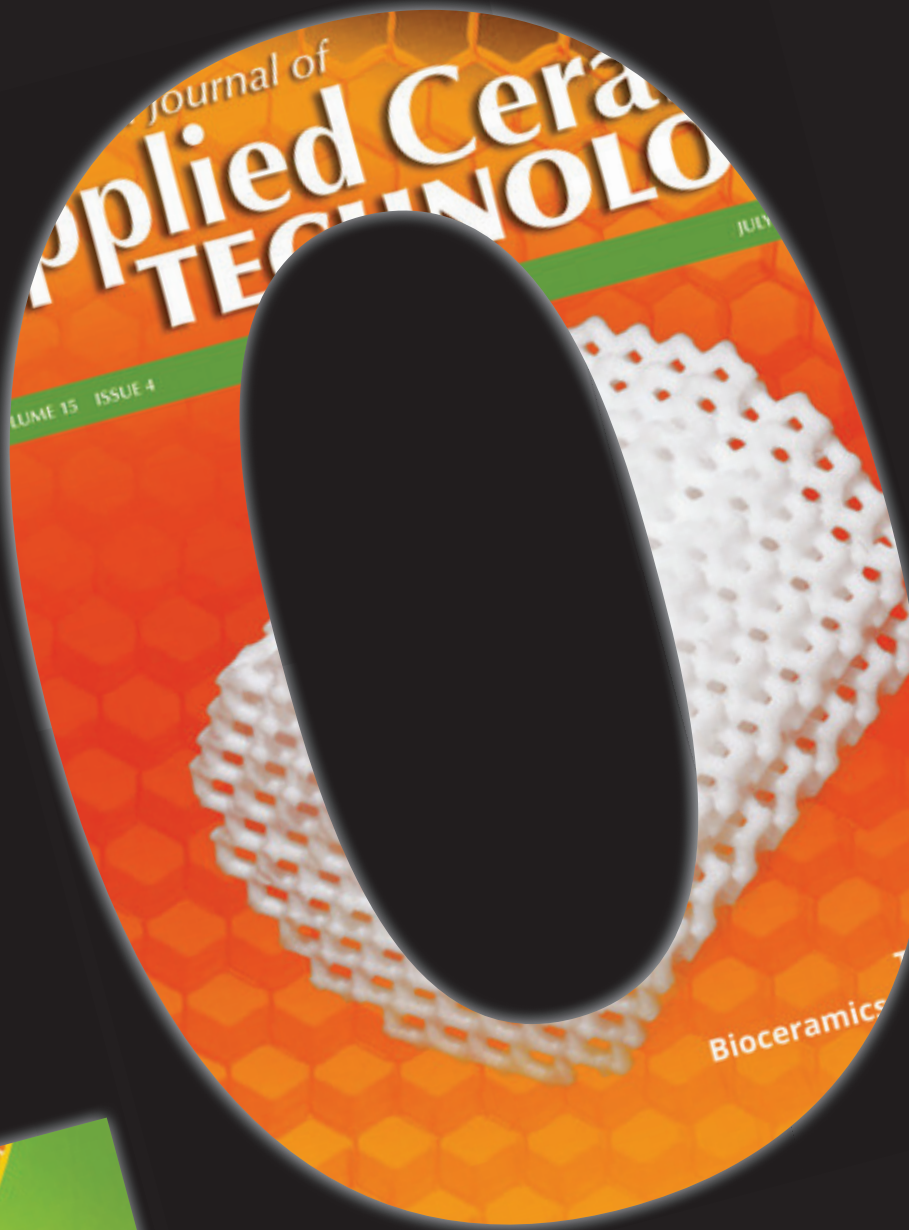
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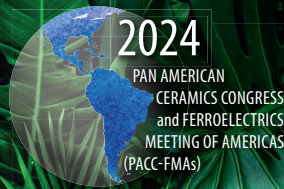
International Conference and Expo on Advanced Ceramics and Composites (ICACC)

Basic Science and Electronics Division Meeting (EMA)

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# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —MONDAY—

### Opening remarks and plenary

#### Room: Star Bay 3

Session Chairs: Rajendra Bordia, Clemson University;  
Sylvia Johnson, NASA-Ames Research Center (ret.)

**8:30 AM**

#### Opening Remarks

**8:45 AM**

#### Materials for Extreme (and Space) Environments: Crystallography and Properties

O. A. Graeve\*<sup>1</sup>

1. University of California San Diego, Mechanical and Aerospace Engineering, USA

**9:40 AM**

#### Greenhouse Gases Observations 1957-2100: Past, Present & Future

M. Dubey\*<sup>1</sup>

1. Los Alamos National Lab, USA

**10:35 AM**

#### Break

**11:05 AM**

#### Identifying Opportunities in Education: Commonalities Using Illustrations

S. Tidrow\*<sup>1</sup>

1. Alfred University, USA

### Ferroelectrics Meeting of Americas

### FMA-Novel applications and device concepts using various ferroics and multiferroics for the applications in bio-components, multifunctional device concepts

Session Chair: Ivair Santos, State University of Maringa

**1:30 PM**

#### (FMA-001-2024) Flexocaloric and Multicaloric Effects in Ferroic and Multiferroic Materials (Invited)

A. Saxena\*<sup>1</sup>

1. Los Alamos National Lab, USA

**2:00 PM**

#### (FMA-002-2024) Energy Harvesting for Remote Road Traffic Sensing using Stacked PZT Transducer and Thermoelectric Generators

W. Dipon\*<sup>1</sup>; B. Gamboa<sup>1</sup>; M. Estrada<sup>1</sup>; S. Garnsey<sup>1</sup>; P. Flynn<sup>2</sup>;  
A. S. Bhalla<sup>2</sup>; R. Guo<sup>2</sup>

1. University of Texas at San Antonio, Electrical and Computer Engineering, USA
2. The University of Texas at San Antonio, USA

**2:20 PM**

#### (FMA-003-2024) Design interface and domain structure in doped BaTiO<sub>3</sub> systems for enhanced relaxor ferroelectric behavior and energy storage (Invited)

N. Cucciniello\*<sup>1</sup>; A. Chen<sup>1</sup>; Q. Jia<sup>2</sup>

1. Los Alamos National Lab, Center for Integrated Nanotechnologies, USA
2. University at Buffalo, Materials Design and Innovation, USA

**2:50 PM**

#### (FMA-004-2024) Superexchange Ferromagnetic Coupling and Thermodynamic Features of the La<sub>2</sub>FeCoO<sub>6</sub> Semiconductor

K. Muñoz Pulido\*<sup>1</sup>; C. E. Deluque Toro<sup>2</sup>; J. Jaramillo<sup>1</sup>;  
J. Roa-Rojas<sup>1</sup>; J. A. Rodríguez<sup>1</sup>; D. Landínez<sup>1</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad del Magdalena, Colombia

**3:10 PM**

#### Break

**3:40 PM**

#### (FMA-005-2024) Design interface and domain structure in doped BaTiO<sub>3</sub> systems for enhanced relaxor ferroelectric behavior and energy storage (Invited)

N. Cucciniello\*<sup>1</sup>; A. R. Mazza<sup>1</sup>; P. Roy<sup>1</sup>; S. Kunwar<sup>1</sup>; D. Zhang<sup>1</sup>;  
A. Chen<sup>2</sup>; Q. Jia<sup>3</sup>

1. Los Alamos National Lab, Center for Integrated Nanotechnologies, USA
2. Los Alamos National Lab, USA
3. University at Buffalo, Materials Design and Innovation, USA

**4:10 PM**

#### (FMA-006-2024) Diamond a Wide Band Gap Material for Quantum Devices and Applications (Invited)

L. Ramasubramanian<sup>1</sup>; R. N. Singh\*<sup>1</sup>

1. Oklahoma State University, School of Materials Science and Engineering, USA

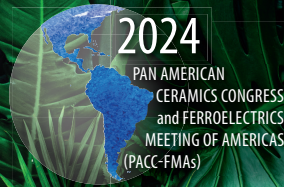
**4:40 PM**

#### (FMA-007-2024) A stable ferroelectric Hf(Zr)<sub>1+x</sub>O<sub>2</sub> rhombohedral phase (Invited) (Invited)

S. Du\*<sup>1</sup>

1. Institute of Physics, Chinese Academy of Sciences, China





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### CO2 Reduction Panel

3:10 PM

#### CO2 Reduction Panel

##### Room: Bellagio

Session Chairs: Neftali Carreno, Federal University of Pelotas;  
Veronika Brune, University of Cologne

1:30 PM

##### **(CO2-001-2024) Activation of Small Molecules for Photocatalytic and Electrocatalytic Conversion into Platform Chemicals (Invited)**

S. Mathur\*<sup>1</sup>

1. University of Cologne, Institute of Inorganic Chemistry, Germany

1:50 PM

##### **(CO2-002-2024) Photoelectrocatalysis as feasible tool to promote CO<sub>2</sub> and nitrogen conversion in aqueous medium (Invited)**

M. Valnice\*<sup>1</sup>

1. São Paulo State University, Institute of Chemistry, Brazil

2:10 PM

##### **(CO2-003-2024) Applications of Cerium-based Materials for Energy and Environment (Invited)**

C. E. Castano\*<sup>1</sup>

1. Virginia Commonwealth University, USA

2:30 PM

##### **(CO2-004-2024) CO<sub>2</sub> Combatants in Latin America's using 2D NanoGuardians: Thin Wonders (Invited)**

A. Arunachalam\*<sup>1</sup>

1. Universidad Tecnologica Metropolitana, Chile

2:50 PM

##### **(CO2-005-2024) Copper vanadates: Synthesis design and use in a photoanode/cathode setup for CO<sub>2</sub> reduction (Invited)**

J. de Oliveira\*<sup>2</sup>; R. R. Silva<sup>1</sup>; G. da Silva<sup>1</sup>; J. A. Torres<sup>2</sup>; A. Vali<sup>3</sup>;  
C. Ribeiro<sup>4</sup>; K. Rajeshwar<sup>3</sup>; L. A. Ruotolo<sup>2</sup>

1. Federal University of São Carlos, Brazil
2. Embrapa Instrumentation, Brazil
3. The University of Texas at Arlington, Department of Chemistry and Biochemistry, USA
4. EMBRAPA Braz Agricultural Res Corp, Instrumentation, Brazil

#### Break

3:40 PM

##### **(CO2-006-2024) Sustainable society: Innovation to cuts of CO<sub>2</sub> and monitoring emergent agri-environmental (Invited)**

N. L. Carreno\*<sup>1</sup>

1. Federal University of Pelotas, Material Engineering, Brazil

4:00 PM

##### **(CO2-007-2024) RespiraTree: Breathe out of CO<sub>2</sub> for Sustainable Development in Chile via Functional Ceramics (Invited)**

M. Viswanathan\*<sup>1</sup>

1. Universidad Adolfo Ibáñez, Faculty of Engineering and

Sciences, Chile

4:20 PM

##### **(CO2-009-2024) Green H<sub>2</sub> production by high-T electrolysis: integration, recycling, waste reduction of materials (Invited)**

S. Anelli\*<sup>1</sup>; F. Smeacetto<sup>1</sup>

1. Politecnico di Torino, Italy

4:40 PM

##### **(CO2-008-2024) Innovative Photocatalytic Materials for CO<sub>2</sub> Conversion in Agriculture (Invited)**

C. Ribeiro\*<sup>1</sup>; J. Filho<sup>1</sup>

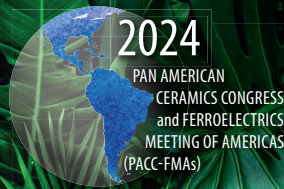
1. EMBRAPA Braz Agricultural Res Corp, Instrumentation,

Brazil

5:00 PM

#### Final Discussion





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —MONDAY—

### PACC1 Functional Ceramics for Energy and Environment

#### PACC1-Functional Ceramics for Energy and Environment

Room: Mirage

Session Chairs: Carlos Castano, Virginia Commonwealth University

1:30 PM

#### (PACC1-001-2024) Self Propagation High Temperature Synthesis of Chevrel Phase Superconductors

T. S. Gilmore\*<sup>1</sup>; J. Rochester<sup>1</sup>; M. D. Sumption<sup>1</sup>; P. Gouma<sup>1</sup>

1. Ohio State University, MSE, USA

1:50 PM

#### (PACC1-002-2024) Bismuth-based Advanced Ceramics: A new generation of multifunctional materials (Invited)

J. Muñoz Saldaña\*<sup>1</sup>; A. Benitez Castro<sup>1</sup>; I. D. Rosales Andrade<sup>2</sup>;  
A. Ramirez Muñoz<sup>1</sup>; J. S. Pérez Bedoya<sup>4</sup>; M. Ayala<sup>3</sup>; A.  
I. Gutiérrez-Pérez<sup>1</sup>; J. Gonzalez Hernandez<sup>2</sup>

1. Cinvestav, CENAPROT, Mexico
2. CINVESTAV Queretaro, Mexico
3. Autonomous University of Queretaro, CIQEC, Mexico
4. Cinvestav, Mexico

2:20 PM

#### (PACC1-003-2024) Ceramic materials for hydrogen technologies; from joining and integration challenges to recycling strategies.

F. Smeacetto<sup>1</sup>; S. Anelli\*<sup>1</sup>

1. Politecnico di Torino, Department of Applied Science  
and Technology (DISAT), Italy

2:40 PM

#### (PACC1-004-2024) Advanced Protective Coatings for Power Generation, Oil & Gas and Mineral Processing (Invited)

E. Medvedovski\*<sup>1</sup>

1. Consultant, Canada

3:10 PM

Break

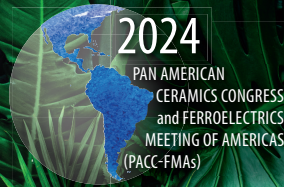
3:40 PM

#### (PACC1-005-2024) Advanced Iron Boride Coatings for Geothermal Power Generation

E. Medvedovski\*<sup>1</sup>; G. Ravier<sup>2</sup>; G. Mendoza<sup>3</sup>

1. Consultant, Canada
2. ES Geothermie, France
3. Endurance Technologies Inc., Canada





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### **PACC3 Densification and Microstructural Evolution in Ceramics During Sintering**

#### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Sintering of nanostructured materials**

**Room: Millenium**

Session Chair: Dachamir Hotza, Federal University of Santa Catarina

**1:30 PM**

#### **(PACC3-001-2024) Stability of Interfaces: Surface and Grain Boundary Energies in the Microstructural Evolution**

G. Douglas\*<sup>1</sup>

1. University of Sao Paulo, Metallurgical and Materials Engineering, Brazil

**2:00 PM**

#### **(PACC3-002-2024) Controlling grain growth in nanoceramics (Invited)**

R. Castro\*<sup>1</sup>

1. Lehigh University, Material Science & Engineering, USA

**2:30 PM**

#### **(PACC3-003-2024) Sintering Evolution in Highly-porous and Nanostructured Materials (Invited)**

R. Gehensel<sup>1</sup>; A. Gómez Gómez<sup>1</sup>; L. Grassi Maragno<sup>1</sup>;  
D. Ribas Gomes<sup>1</sup>; K. P. Furlan\*<sup>1</sup>

1. Hamburg University of Technology, Institute of Advanced Ceramics, Integrated Materials Systems group, Germany

**3:00 PM**

**Break**

### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Sintering of nanostructured materials**

Session Chair: Dachamir Hotza, Federal University of Santa Catarina

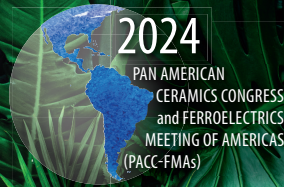
**3:40 PM**

#### **(PACC3-004-2024) Nanoparticle Exsolution in LaNi<sub>x</sub>Fe<sub>1-x</sub>O<sub>3</sub> Perovskite Films for Catalytic Applications (Invited)**

S. Mozzaquatro Pasini<sup>1</sup>; A. de Souza Niero<sup>1</sup>; B. Oechsler<sup>1</sup>;  
D. Hotza<sup>1</sup>; S. Y. Gómez González\*<sup>1</sup>

1. Federal University of Santa Catarina, Chemical Engineering, Brazil





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### **PACC5 Advances in Cements, Geopolymers, and Structural Clay Construction Materials**

#### **PACC5-Advances in Cements, Geopolymers, and Structural Clay Materials: Metakaolin and Phosphate-based Geopolymers**

##### **Room: Portofino**

Session Chair: Angel Palone, IETCC-CSIC

**1:30 PM**

**(PACC5-001-2024) Controlling geopolymer shaping by understanding the reactivity of metakaoline mixtures (Invited)**

S. Rossignol<sup>1\*</sup>

1. IRCER, France

**2:00 PM**

**(PACC5-002-2024) Production and characterization of cocoa pods and periwinkle shell ash-based geopolymers (Invited)**

M.B. Ogundiran<sup>\*1</sup>

1. University of Ibadan, Department of Chemistry, Nigeria

**2:30 PM**

**Break**

### **PACC5-Advances in Cements, Geopolymers, and Structural Clay Materials: Cementitious Materials and SCMs**

Session Chair: Sylvie Rossignol, Laboratoire SPCTS

**3:30 PM**

**(PACC5-005-2024) Barriers preventing the early development of neutral carbon cements (Invited)**

A. Palomo<sup>\*1</sup>

1. IETCC-CSIC, Spain

**4:30 PM**

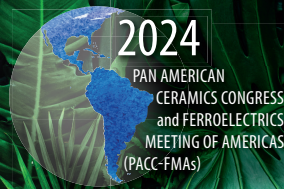
**(PACC5-006-2024) Alkaline cements from artificial precursors (Invited)**

A. M. Fernandez<sup>\*1</sup>; P. Martín-Rodríguez<sup>1</sup>; I. Garcia-Lodeiro<sup>1</sup>;

A. Palomo<sup>1</sup>

1. Instituto Ciencias de la Construcción Eduardo Torroja (IETCC-CSIC), Materiales, Spain

1. Universidad de Concepción, Minas y Metalurgia, Chile
2. Universidad de Concepcion, Chile



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### **PACC6 Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

#### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

##### **Room: Revolution**

Session Chairs: Erwan Gueguen, RHIMAGNESITA;  
Paschoal Bonadia, Actech

**1:30 PM**

**(PACC6-001-2024) Next challenges of refractory materials in the steel industry - Ternium experience (Invited)**

L. Martorello\*<sup>1</sup>

1. Ternium, Industrial Coordination, Mexico

**2:00 PM**

**(PACC6-002-2024) Reimagining refractories: How a professional society influences the perception of refractory technology and engineering (Invited)**

L. McDonald\*<sup>1</sup>; A. Engen<sup>1</sup>; M. Mecklenborg<sup>1</sup>; E. De Guire<sup>1</sup>

1. The American Ceramic Society, USA

**2:20 PM**

**(PACC6-003-2024) Research progress on the development of lightweight magnesia refractory based on natural magnesite resources**

W. Yan\*<sup>1</sup>; Y. Li<sup>1</sup>

1. Wuhan University of Science and Technology, China

**2:40 PM**

**(PACC6-004-2024) Insights on how to tailor the properties of eco-friendly alternatives to magnesia-chromium aggregates**

O. H. Borges\*<sup>1</sup>; N. Brachhold<sup>2</sup>; T. Zienert<sup>2</sup>; F. G. Coury<sup>1</sup>; C. Pagliosa<sup>3</sup>; C. Aneziris<sup>2</sup>; V. Pandolfelli<sup>1</sup>

1. Federal University of São Carlos, Materials Engineering Department (DEMa), Brazil
2. Technische Universität Bergakademie Freiberg Institut, Keramik, Feuerfest und Verbundwerkstoffe, Germany
3. RHI Magnesita, Research and Development Center, Brazil

**3:00 PM**

**Break**

### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

Session Chairs: Gibran Sanchez, Pyrotek; Leandro Martorello, Ternium

**3:30 PM**

**(PACC6-005-2024) How can Recycling circular model contribute for tackling Sustainability challenges in the Refractory industry? (Invited)**

E. Gueguen\*<sup>1</sup>

1. RHIMAGNESITA, France

**4:00 PM**

**(PACC6-006-2024) Mineralogical composition influence on strength deterioration by thermal cycling of alumina bricks (Invited)**

S. Camelli\*<sup>1</sup>; M. Rimoldi<sup>1</sup>; M. Dignani<sup>1</sup>; P. Marinelli<sup>2</sup>

1. Instituto Argentino de Siderurgia, Refractory Materials, Argentina
2. Ternium Argentina, Argentina

**4:20 PM**

**(PACC6-007-2024) Assessment of monocarbonate (C4A<sub>3</sub>H<sub>11</sub>) and hydrotalcite (M-A-H) bonded alumina-spinel castables**

N. Liao\*<sup>1</sup>; Y. Li<sup>1</sup>

1. Wuhan University of Science and Technology, China

**4:40 PM**

**(PACC6-008-2024) Hibonite formation in CaO-ZnO-Al<sub>2</sub>O<sub>3</sub> system, an analogue to CaO-MgO-Al<sub>2</sub>O<sub>3</sub>, in spinel containing refractories**

R. D. Ramteke\*<sup>1</sup>; J. G. Hemrick<sup>2</sup>; M. Mahapatra<sup>3</sup>

1. University of Alabama at Birmingham, Mechanical and Materials Engineering, USA
2. Oak Ridge National Laboratory, USA
3. University of Alabama at Birmingham, USA

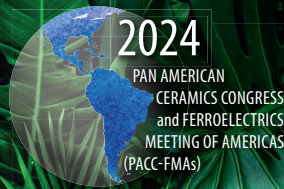
**5:00 PM**

**(PACC6-009-2024) Enhanced Microstructural Control of Ceramic Bodies through Heterocoagulation and Suspension Medium Selection**

K. DeCarlo\*<sup>1</sup>

1. Blasch Precision Ceramics, Technology, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### PACC9 Materials Approach to Art, Archaeology and Architecture in Americas II

#### **PACC9-Materials Approach to Art,Arch, and Architecture in the Americas: Multianalytical Approaches in Archaeology**

**Room: Venetian**

Session Chair: Christina Bisulca, Detroit Institute of Arts

**1:30 PM**

**(PACC9-001-2024) Doing everything the same to make  
different things: the forming techniques of Capacha  
pottery(Invited)**

C. Salgado-Ceballos<sup>\*1</sup>; Ó. de Lucio Morales<sup>2</sup>; A. Mitrani<sup>2</sup>

1. Universidad de Guadalajara, Departamento de Estudios Mesoamericanos y Mexicanos, Mexico
2. Universidad Nacional Autónoma de México, Instituto de Física, Mexico

**2:00 PM**

**(PACC9-002-2024) Non-invasive in situ analyses of  
pastes and polychromy of Chupícuaro figurines**

J. Ruvalcaba-Sil<sup>\*1</sup>; A. Mitrani<sup>1</sup>; E. Casanova-Gonzalez<sup>2</sup>;  
C. Zenil<sup>1</sup>; C. Lopez-Puertolas<sup>1</sup>; M. Perez-Flores<sup>1</sup>;  
A. Ejarque-Gallardo<sup>1</sup>; G. Sánchez Villegas<sup>4</sup>; B. Fauguere<sup>3</sup>

1. Universidad Nacional Autonoma de Mexico, Instituto de Fisica, Mexico
2. CONAHCYT, Instituto de Fisica, UNAM, Mexico
3. Université Paris 1 Panthéon-Sorbonne, Archéologie des Amériques, France
4. Instituto Nacional de Antropología e Historia, Museo Regional de Guanajuato, Mexico

**2:20 PM**

**(PACC9-003-2024) Analysis of Early Formative  
Ceramic Technology in the Colombian Caribbean:  
Puerto Hormiga and Monsú**

A. A. Cadena Guativa<sup>\*1</sup>

1. UNIGIS América Latina-Paris Lodron University of Salzburg, Departamento de Geoinformática Z\_GIS, Austria

**2:40 PM**

**(PACC9-004-2024) Materials and choices: chemical  
and microtextural characterization of Panamanian  
ceramics (Invited)**

J. G. Iñáñez<sup>\*1</sup>; J. G. Martín<sup>2</sup>; M. D. Glascock<sup>3</sup>

1. University of the Basque Country, Geography, Prehistory and Archaeology, Spain
2. Universidad del Norte, Historia y Ciencias Sociales, Colombia
3. University of Missouri, Columbia, Research Reactor Center University of Missouri (MURR), USA

### **PACC9-Materials Approach to Art,Arch, and Architecture in the Americas: Study of Technology to Reconstruct Behaviors**

Session Chair: Molly McGath, The Mariners' Museum and Park

**3:10 PM**

**Break**

**3:40 PM**

**(PACC9-006-2024) Fish processing in pre-Columbian  
Panama: Traditions, technologies in two  
environmental contexts**

D. R. Carvajal Contreras<sup>\*1</sup>; I. I. Isaza<sup>1</sup>

1. COIBA AIP, Panama

**4:00 PM**

**(PACC9-007-2024) Evidence for manufacturing  
processes in archaeological ceramics from El Caño  
(780 – 1020 AD) through radiographic imaging**

J. T. Chaves<sup>\*1</sup>

1. Smithsonian Tropical Research Institute, Archaeology, Panama

**4:20 PM**

**(PACC9-008-2024) Mercury and the Enigma of  
Alluvial Gold Mining in Pre-Contact  
Peru-The Present is Key to the Past**

W. E. Brooks<sup>\*1</sup>

1. Consultant, USA

**4:40 PM**

**(PACC9-009-2024) Firing Temperatures of Late  
Pleistocene Pottery Made by Hunter-Gatherers,  
Tanegashima Island, Southern Japan (Invited)**

F. Iizuka<sup>\*1</sup>

1. University of Missouri, Anthropology & Research Reactor Center, USA



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### PACC10 2D Materials: Synthesis, Properties and Applications

#### **PACC10-2D Materials Synthesis, Properties, and Applications**

**Room: Vitri**

Session Chairs: Andreas Rosenkranz, University of Chile;  
Christopher Shuck, Rutgers University

**1:30 PM**

**(PACC10-001-2024) Novel mechanisms for  
ferroelectricity and antiferroelectricity at the 2D limit  
(Invited)**

S. Barraza-Lopez\*<sup>1</sup>

1. University of Arkansas, Physics, USA

**2:00 PM**

**(PACC10-002-2024) Molecular Building Sets for 2D van  
der Waals Material Synthesis**

V. Brune\*<sup>1</sup>; S. Mathur<sup>2</sup>

1. University of Cologne, Chemistry, Germany
2. University of Cologne, Institute of Inorganic Chemistry,  
Germany

**2:20 PM**

**(PACC10-003-2024) Dynamics of confined fluids in  
MXenes (Invited)**

N. C. Osti\*<sup>1</sup>

1. Oak Ridge National Laboratory, Neutron Scattering  
Division, USA

**2:50 PM**

**(PACC10-004-2024) Rational Designing of Nickel  
Sulfoselenide: A Sustainable Electrocatalyst for Water  
Splitting**

A. Arunachalam\*<sup>1</sup>; M. Viswanathan<sup>2</sup>

1. Universidad Tecnológica Metropolitana, Departamento  
de Electricidad, Chile
2. Universidad Adolfo Ibáñez, Faculty of Engineering and  
Sciences, Chile

**3:10 PM**

**Break**

**3:40 PM**

**(PACC10-005-2024) MXene Chemistry and Applications  
(Invited)**

V. Mochalin\*<sup>1</sup>

1. Missouri University of Science & Technology, USA

**4:10 PM**

**(PACC10-006-2024) Nitrogen Catalysis by an Induced  
Polarization through a Piezo-assisted Catalysis**

B. Witulski\*<sup>1</sup>; J. de Oliveira<sup>1</sup>; T. Fischer<sup>1</sup>; S. Mathur<sup>1</sup>

1. University of Cologne, Institute of Inorganic Chemistry,  
Germany

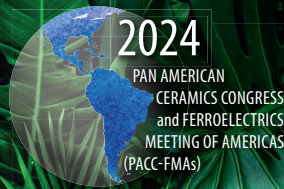
**4:30 PM**

**(PACC10-007-2024) Photocatalytic CO<sub>2</sub> Reduction of  
new 2D Janus-type by using density functional theory**

M. Boujnah\*<sup>1</sup>; M. C. Jáuregui<sup>4</sup>; J. M. SORIA<sup>3</sup>; J. Muñoz  
Saldaña<sup>2</sup>

1. Centro de Investigación y de Estudios Avanzados  
del IPN, CENAPROT, Mexico
2. Cinvestav, CENAPROT, Mexico
3. Instituto de Energías Renovables, UNAM, Mexico
4. Centro de Nanociencias y Nanotecnología, UNAM,  
Mexico





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### Poster Session

Room: Star Bay 1-2

5:30 PM

**(POS-001-2024) Effects of the lanthanum substitution on the structural and optical properties of lead-free  $\text{AgNbO}_3$  thin films**

Y. Mendez González<sup>2</sup>; J. de los Santos Guerra<sup>\*1</sup>;  
F. Agulló-Rueda<sup>3</sup>; O. Peña Rodríguez<sup>2</sup>; M. Manso Silván<sup>4</sup>

1. Federal University of Uberlandia, Institute of Physics, Brazil
2. Universidad Politécnica de Madrid, Instituto de Fusión Nuclear "Guillermo Velarde", Spain
3. Materials Science Institute of Madrid (ICMM), CSIC, Spain
4. Universidad Autónoma de Madrid, Departamento de Física Aplicada and Instituto de Ciencia de Materiales Nicolás Cabrera, Spain

**(POS-002-2024) Impact of Samarium on properties of KNN-based ceramics**

G. Giraldo<sup>\*1</sup>; F. Londoño Badillo<sup>1</sup>; J. Tobon Gomez<sup>1</sup>;  
A. Echavarría Isaza<sup>1</sup>; S. Amaya Zabala<sup>1</sup>

1. Universidad de Antioquia, Ciencias exactas y naturales, Colombia

**(POS-003-2024) Crystallographic, electrical and magnetic characteristics of the  $\text{Yb}_2\text{FeCoO}_6$  perovskite**

C. Carrillo Rodríguez<sup>\*1</sup>; X. A. Velásquez<sup>1</sup>; J. Roa-Rojas<sup>1</sup>;  
D. Landínez<sup>1</sup>; C. Parra<sup>2</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad Pedagógica y Tecnológica de Colombia, Colombia

**(POS-004-2024) Crystallographic, electrical and magnetic characteristics of the  $\text{Yb}_2\text{FeCoO}_6$  perovskite**

O. I. Bohórquez Cruz<sup>\*1</sup>; X. A. Velásquez<sup>1</sup>; J. Roa-Rojas<sup>1</sup>;  
D. Landínez<sup>1</sup>; C. Parra<sup>2</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad Pedagógica y Tecnológica de Colombia, Colombia

**(POS-005-2024) Dielectric and piezoelectric behavior of the BST system as a function of the synthesis processes**

L. Sierra<sup>\*1</sup>; F. Londoño<sup>1</sup>; F. Bolívar<sup>1</sup>; A. Echavarría<sup>1</sup>;  
T. Steven<sup>2</sup>

1. Universidad de Antioquia, Antioquia, Colombia
2. Alfred University, USA

**(POS-006-2024) Evidences of coexistence of the ferroelectric and antiferroelectric phases in the PLZT 4/95/5 system**

Y. Pérez Martín<sup>2</sup>; A. Peláiz Barranco<sup>2</sup>; T. Yang<sup>3</sup>;  
J. de los Santos Guerra<sup>\*1</sup>

1. Federal University of Uberlandia, Institute of Physics, Brazil
2. Universidad de La Habana, Facultad de Física-Instituto de Ciencia y Tecnología de Materiales, Cuba
3. Tongji University, College for Materials Science and Engineering, China

**(POS-007-2024) Pyroelectric response and figures-of-merit of  $(\text{Bi}_{0.5}\text{Na}_{0.5})_{1-x}\text{Ba}_x\text{TiO}_3$  lead-free ferroelectric ceramics**

A. Iglesias Jaime<sup>2</sup>; Y. Pérez Martín<sup>2</sup>; A. Piñeiro Regueiro<sup>2</sup>;  
A. Peláiz Barranco<sup>2</sup>; J. de los Santos Guerra<sup>\*1</sup>

1. Federal University of Uberlandia, Institute of Physics, Brazil
2. Universidad de La Habana, Facultad de Física-Instituto de Ciencia y Tecnología de Materiales, Cuba

**(POS-008-2024) Dielectric relaxation mechanisms and conductivity behavior in the BLaFCTO multiferroic system**

Y. González Abreu<sup>2</sup>; A. Peláiz Barranco<sup>2</sup>; J. de los Santos Guerra<sup>\*1</sup>

1. Federal University of Uberlandia, Institute of Physics, Brazil
2. Universidad de La Habana, Facultad de Física-Instituto de Ciencia y Tecnología de Materiales, Cuba

**(POS-009-2024) High resolution laser assisted load dilatometry for axial and radial sintering strain measurements**

H. Camacho Montes<sup>\*1</sup>; L. H. Rascón Madrigal<sup>2</sup>; H. M. Loya Caraveo<sup>2</sup>; A. García Reyes<sup>2</sup>; I. M. Ontiveros Muñoz<sup>2</sup>;

1. M. Espinoza Ochoa<sup>1</sup>; A. Vega Siverio<sup>1</sup>; R. Bordia<sup>4</sup>
  1. Universidad Autonoma de Ciudad Juarez, Physics and Mathematics, Mexico
  2. Universidad Autonoma de Ciudad Juarez, Electrical Engineering and Computing, Mexico
  3. PROQUIMAR, Mexico
  4. Clemson University, Materials Science and Engineering, USA

**(POS-010-2024) X-ray Powder Diffractometry Technique in the Study of Mummified Human Skin**

J. Bak<sup>\*1</sup>

1. Jagiellonian University, Poland

**(POS-011-2024) Novel Neural Networks for Predicting Ferroelectric Material Properties**

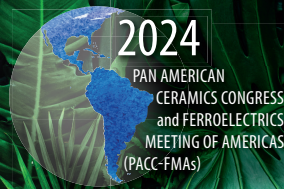
V. E. Vizcarra Ruiz<sup>1</sup>; H. N. Machado<sup>2</sup>; R. Guo<sup>3</sup>; A. S. Bhalla<sup>3</sup>; L. F. Cótica<sup>\*1</sup>

1. State University of Maringa, Department of Physics, Brazil
2. Universidade Estadual de Maringá, Departamento de Física, Brazil
3. University of Texas, San Antonio, USA

**(POS-012-2024) Pb Coordination Environment and its connectivity in Lead Silicate Glasses: Results from 2D  $^{207}\text{Pb}$  NMR**

I. M. Saavedra<sup>\*1</sup>; A. Barrera<sup>1</sup>; J. A. Cuervo<sup>1</sup>; C. Parra<sup>1</sup>

1. Universidad Pedagógica y Tecnológica de Colombia, Boyacá, Colombia



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### (POS-013-2024) Microwave-assisted sintering of lead-free nanostructured BZT/CFO magnetoelectric composites

- L. P. Caminata<sup>\*1</sup>; J. A. Eiras<sup>2</sup>; R. Kiminami<sup>1</sup>  
1. Federal University of Sao Carlos, Brazil  
2. Federal University of Sao Carlos, Physics, Brazil

### (POS-014-2024) Structural and luminescent properties of Ho<sub>3-x-y</sub>Gd<sub>x</sub>Lu<sub>1-x-z</sub>Al<sub>z</sub>Fe<sub>2</sub>O<sub>12</sub>

- Y. E. Parada Cano<sup>\*1</sup>; I. M. Saavedra<sup>2</sup>; C. Parra<sup>1</sup>  
1. Universidad Pedagógica y Tecnológica de Colombia, Colombia  
2. Universidad Pedagógica y Tecnológica de Colombia, Boyacá, Colombia

### (POS-015-2024) Electrochemical Evaluation of TiVN Trilayers for Biomaterials Applications

- A. M. Ríos Rojas<sup>\*1</sup>; E. Vera<sup>1</sup>; W. Aperador<sup>2</sup>  
1. Universidad Pedagógica y Tecnológica de Colombia, Ingeniería, Colombia  
2. Universidad Nueva Granada, Ingeniería, Colombia

### (POS-016-2024) Additive manufacturing practices in the alpha generation

- E. D. V-Niño<sup>\*1</sup>; J. L. Endrino Armenteros<sup>2</sup>; C. A. Calero Almeyda<sup>1</sup>; E. Mejía Ospino<sup>3</sup>; R. Cabanzo Hernández<sup>3</sup>  
1. FORISTOM Foundation, Spain  
2. Universidad Loyola, Spain  
3. Universidad Industrial de Santander, Colombia

### (POS-017-2024) Physical Properties of BiFe<sub>1-x</sub>Mn<sub>x</sub>Co<sub>6</sub>O<sub>3</sub> Thin Films

- H. S. Miranda<sup>\*1</sup>; E. De Obaldía<sup>1</sup>; E. A. Ching<sup>1</sup>  
1. Universidad Tecnológica de Panamá, Facultad de Ciencias y Tecnología, Panamá

### (POS-018-2024) Mechanochemistry synthesis of hydrotalcites for the conversion of vanillin, a lignin derivative

- A. Naranjo<sup>\*1</sup>  
1. Universidad Pedagógica y Tecnológica de Colombia, Colombia

### (POS-019-2024) Electronic Structure and Optical Properties of Rhombohedral and Triclinic BiFeO<sub>3</sub>

- E. A. Ching<sup>\*1</sup>; H. S. Miranda<sup>2</sup>  
1. Universidad Tecnológica de Panamá, Natural Science, Panama  
2. Universidad Tecnológica de Panamá, Ciencias Naturales, Panama

### (POS-020-2024) Impact of Fe<sup>3+</sup> ion on the physical properties of Nd<sub>2</sub>.68Ba<sub>1.32</sub>Mn<sub>2</sub>.68-yTi<sub>1.32</sub>FeyO<sub>12</sub> perovskite

- J. A. Cuervo<sup>\*1</sup>; A. Albarracín Castillo<sup>1</sup>; J. M. Cubillos Cadena<sup>3</sup>;  
1. Universidad Pedagógica y Tecnológica de Colombia, Grupo de Física de Materiales, Escuela de Física, Colombia  
2. Universidad Nacional de Colombia, Physics, Colombia  
3. Universidad Pedagógica y Tecnológica de Colombia, GISABA, Escuela de Ingeniería, Colombia

### (POS-021-2024) Motivating Medellín Colombia Students to Engineering Using Robotics

- H. E. Rebellón<sup>\*1</sup>; F. Londoño Badillo<sup>3</sup>; S. Tidrow<sup>2</sup>  
1. Universidad de Antioquia, Mechanical engineering, Colombia  
2. Alfred University, USA  
3. Universidad de Antioquia, Colombia

### (POS-022-2024) Structural evolution and phase transition analysis of Ba<sup>2+</sup> and Sn<sup>4+</sup> co-doped PLZT ferroelectric ceramics

- P. Mendonça de Paiva<sup>2</sup>; A. Carvalho da Silva<sup>1</sup>; Y. Mendez González<sup>2</sup>; R. Guo<sup>4</sup>; A. S. Bhalla<sup>4</sup>; J. de los Santos Guerra<sup>\*1</sup>  
1. Federal University of Uberlandia, Institute of Physics, Brazil  
2. UNESP, Campus de Ilha Solteira, Departamento de Física e Química, Brazil  
3. Universidad Politécnica de Madrid, Instituto de Fusión Nuclear "Guillermo Velarde", Spain  
4. University of Texas, San Antonio, USA

### (POS-023-2024) Phase transition characteristics and energy-storage performance in Sn-modified BaTiO<sub>3</sub> lead-free ceramics

- R. Guilherme Flávio Dornelas<sup>1</sup>; S. Lopez Blanco<sup>2</sup>; A. Carvalho da Silva<sup>1</sup>; Y. Mendez González<sup>3</sup>; J. Eduardo García<sup>2</sup>; J. de los Santos Guerra<sup>\*1</sup>  
1. Federal University of Uberlandia, Institute of Physics, Brazil  
2. Universitat Politècnica de Catalunya – BarcelonaTech, Department of Physics, Spain  
3. Universidad Politécnica de Madrid, Instituto de Fusión Nuclear "Guillermo Velarde", Spain

### (POS-024-2024) Ca<sub>2</sub>TiMO<sub>6</sub> ordered perovskite: A comprehensive study of its structure and magnetic attributes

- L. V. Parra<sup>\*2</sup>; C. Parra<sup>1</sup>; I. M. Saavedra<sup>1</sup>; D. Landínez<sup>2</sup>; J. Roa-Rojas<sup>2</sup>  
1. Universidad Pedagógica y Tecnológica de Colombia, Boyacá, Colombia  
2. Universidad Nacional de Colombia, Physics, Colombia

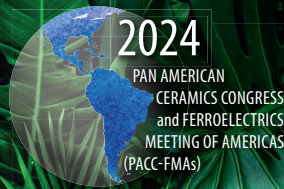
### (POS-025-2024) La-doped BFO Thin Films: Structural and Chemical Characterizations

- A. C. Ferreira<sup>\*1</sup>; I. A. Santos<sup>1</sup>; E. Castelli Astrath<sup>2</sup>; B. P. Cabral Jr.<sup>1</sup>; A. Nascimento Volnistem<sup>1</sup>; G. S. Dias<sup>1</sup>  
1. State University of Maringá, Department of Physics, Brazil  
2. Federal Institute of Paraná, Brazil

### (POS-026-2024) Investigation of the dielectric relaxation processes in AgNbO<sub>3</sub> based ferroelectric ceramics

- T. Hathenher Toledo Rosa<sup>\*1</sup>; R. Guo<sup>2</sup>; A. S. Bhalla<sup>2</sup>; J. de los Santos Guerra<sup>1</sup>  
1. Federal University of Uberlandia, Institute of Physics, Brazil  
2. University of Texas, San Antonio, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —MONDAY—

### (POS-027-2024) Optimization of Synthesis Parameters and Investigation of Ferroic Properties in the Aurivillius System $\text{Bi}_5\text{Ti}_3\text{FeO}_{15}$ Ceramics

V. M. Barbosa<sup>\*1</sup>; J. A. Eiras<sup>3</sup>; M. S. Alkathy<sup>2</sup>; F. L. Zabetto<sup>2</sup>

1. Federal University of Sao Carlos, Physical, Brazil
2. Federal University of Sao Carlos, Physics Department, Brazil
3. Federal University of Sao Carlos, Physics, Brazil

### (POS-029-2024) Structural and magnetic properties of the $\text{Sr}_{0.67}\text{Sm}_{0.33}\text{Ti}_{0.34}\text{Fe}_{(0.66-x)}\text{Sn}_x\text{O}_3$ perovskite-type system

E. D. Chinome<sup>\*2</sup>; I. Saavedra<sup>2</sup>; J. Roa-Rojas<sup>1</sup>; C. Parra<sup>2</sup>; J. A. Cuervo<sup>2</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad Pedagógica y Tecnológica de Colombia, Grupo de Física de Materiales, Escuela de Física, Colombia

### (POS-030-2024) Study of $\text{CoFe}_2\text{O}_4$ Nanoparticles/PZT Fiber/Polymer Composites for Magnetoelectric Effect-Based Sensors

L. N. Pereira<sup>1</sup>; J. C. Pastoril<sup>1</sup>; G. S. Dias<sup>1</sup>; I. A. Santos<sup>1</sup>; R. Guo<sup>2</sup>; A. S. Bhalla<sup>2</sup>; L. F. Cótica<sup>\*1</sup>

1. State University of Maringa, Department of Physics, Brazil
2. University of Texas, San Antonio, USA

### (POS-031-2024) Magnetic semiconductor $\text{Sr}_{2.68}\text{Re}_{1.32}\text{Ti}_{1.36}\text{Fe}_{1.32}\text{Sn}_{1.32}\text{O}_{12}$ (Re = Sm, Eu): physical characteristics

J. M. Cubillos Cadena<sup>\*1</sup>; D. Useche Villamizar<sup>1</sup>; C. Parra<sup>3</sup>; J. Roa-Rojas<sup>2</sup>; J. A. Cuervo<sup>3</sup>

1. Universidad Pedagógica y Tecnológica de Colombia, GISABA, Escuela de Ingeniera, Colombia
2. Universidad Nacional de Colombia, Physics, Colombia
3. Universidad Pedagógica y Tecnológica de Colombia, Grupo de Física de Materiales, Escuela de Física, Colombia

### (POS-032-2024) Hybrid self-decontaminating textile coating

G. B. Calais<sup>1</sup>; R. A. Bataglioli<sup>2</sup>; V. M. de Souza<sup>1</sup>; P. Chevalier<sup>3</sup>; Â. M. Moraes<sup>1</sup>; D. Mantovani<sup>3</sup>; M. M. Beppu<sup>\*1</sup>

1. Universidade Estadual de Campinas, School of Chemical Engineering, Brazil
2. Virginia Tech, Department of Biological Sciences, USA
3. Université Laval, Department of Mining, Metallurgical and Materials Engineering, Canada

### (POS-033-2024) Low-cost thermoelectric modules for low temperature waste heat recovery

O. A. Pulgarin<sup>\*1</sup>; N. F. Sanchez<sup>1</sup>; H. A. Colorado L.<sup>1</sup>

1. Universidad de Antioquia, Colombia

### (POS-034-2024) Structural and electrical properties of BNT-KBT based lead-free piezoelectric solid solutions

M. Aparecido dos Santos Mariano<sup>\*1</sup>; A. Carvalho da Silva<sup>1</sup>; R. Guo<sup>2</sup>; A. S. Bhalla<sup>2</sup>; J. Eduardo García<sup>3</sup>; J. de los Santos Guerra<sup>1</sup>

1. Federal University of Uberlândia, Institute of Physics, Brazil
2. University of Texas, San Antonio, USA
3. Universitat Politècnica de Catalunya – BarcelonaTech, Department of Physics, Spain

### (POS-035-2024) Evaluation of the drying behavior or refractory castables bonded with colloidal silica

A. F. Prado<sup>\*1</sup>; C. G. Andreto<sup>1</sup>; L. Fernandes<sup>1</sup>; I. Martinatti<sup>1</sup>; P. R. Tiba<sup>2</sup>; R. Salomão<sup>1</sup>

1. University of Sao Paulo – Sao Carlos School of Engineering, Materials Engineering and Manufacturing, Brazil
2. Nouryon Pulp and Performance Indústria Química Ltda, Brazil

### (POS-036-2024) Structural and ferroic features of $\text{CaCo}_2\text{Ti}_2\text{Fe}_8\text{O}_{19}$ and $\text{SrCo}_2\text{Ti}_2\text{Fe}_8\text{O}_{19}$ M-type hexaferrites

F. A. Paez-Reyes<sup>\*1</sup>; D. Landínez<sup>1</sup>; J. Roa-Rojas<sup>2</sup>

1. Universidad Nacional de Colombia, Colombia
2. Universidad Nacional de Colombia, Physics, Colombia

### (POS-037-2024) Preliminary Analysis of the Manufacture of Ceramics at Site JI-1, Jicarita Island, Panama

J. T. Chaves<sup>\*1</sup>; D. R. Carvajal Contreras<sup>2</sup>; I. I. Isaza<sup>2</sup>

1. Smithsonian Tropical Research Institute, Panama
2. Smithsonian Tropical Research Institute and COIBA-AIP Research Station, Panama

### (POS-038-2024) High Concentration of RE3+-doped Fluorophosphate Glasses for Luminescent Thermometry Applications

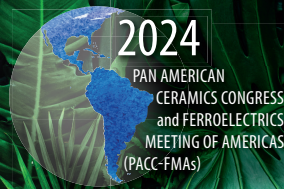
H. F. Manzani<sup>1</sup>; R. S. Baltieri<sup>1</sup>; D. Manzani<sup>\*1</sup>

1. University of São Paulo, São Carlos Institute of Chemistry, Brazil

### (POS-039-2024) Synthesis and characterization of highly ordered $\text{Ca}_7\text{Si}_2\text{P}_2\text{O}_{16}$ Nurse (Ass) dense bioceramics

Y. R. Martinez<sup>\*1</sup>; J. Muñoz Saldaña<sup>1</sup>; M. Boujnah<sup>1</sup>; C. Hernandez<sup>2</sup>

1. Cinvestav, CENAPROT, Mexico
2. Crodu-celaya, Mexico



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —MONDAY—

### (POS-040-2024) Review - Study of the gelation mechanisms presented by colloidal silica

A. F. Prado<sup>\*1</sup>; C. G. Andreto<sup>1</sup>; L. Fernandes<sup>1</sup>; I. Martinatti<sup>1</sup>; P. R. Tiba<sup>2</sup>; R. Salomão<sup>1</sup>

1. University of Sao Paulo - Sao Carlos School of Engineering, Materials Engineering and Manufacturing, Brazil
2. Nouryon Pulp and Performance Indústria Química Ltda, Brazil

### (POS-041-2024) In Vitro bioactivity of sol-gel derived $\alpha/\beta$ - $\text{Ca}_3(\text{PO}_4)_2$ silicate glass-ceramic

I. K. Mihailova<sup>\*1</sup>; P. Dimitrova<sup>2</sup>; L. Radev<sup>3</sup>

1. University of Chemical Technology and Metallurgy, Silicate Technology, Bulgaria
2. The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Department of Immunology, Bulgaria
3. University of Chemical Technology and Metallurgy, Department of Inorganic Technology, Bulgaria

### (POS-042-2024) Chemical bonding, optical basicity, and refractive index of glasses in the $\text{BaO}/\text{K}_2\text{O}-\text{TeO}_2-\text{Bi}_2\text{O}_3-\text{B}_2\text{O}_3$ systems

T. R. Tasheva<sup>\*1</sup>; S. Slavov<sup>1</sup>; R. Harizanova<sup>2</sup>; I. K. Mihailova<sup>1</sup>

1. University of Chemical Technology and Metallurgy, Sofia, Silicate Technology, Bulgaria
2. University of Chemical Technology and Metallurgy, Physics Department, Bulgaria
3. University of Chemical Technology and Metallurgy, Department of Mathematics, Bulgaria

### (POS-043-2024) Aerogels based on bacterial cellulose with hydroxyapatite for tissue repair

G. D. Garcia<sup>\*1</sup>; L. M. Lona<sup>1</sup>; R. F. Magnago<sup>2</sup>

1. School of Applied Science of Unicamp, Department of Materials and Bioprocess Engineering, Brazil
2. Universidade Federal de Santa Catarina (UFSC), VirtuHab, Brazil

### (POS-044-2024) Finite elements simulations of the direct magnetoelectric effect in 0:3 connected ferroelectric:ferromagnetic composites towards fabrication of multifunctional electronic devices by inkjet printing

P. Flynn<sup>\*1</sup>

1. The University of Texas at San Antonio, USA

### (POS-045-2024) Synthesis of Zeolite through hydrothermal route using residual fractions from run-of-mine coal beneficiation

E. F. Olivo<sup>1</sup>; C. Borgert<sup>\*1</sup>; R. F. Nazario<sup>2</sup>; J. Acordi<sup>1</sup>; J. Zocche<sup>3</sup>; F. R. Pereira

1. Universidade do Extremo Sul Catarinense, Programa de Pós-Graduação em Ciência e Engenharia de Materiais, Brazil
2. Universidade do Extremo Sul Catarinense, Biological Sciences, Brazil
3. Universidade do Extremo Sul Catarinense, Programa de Pós-graduação em Ciências Ambientais, Brazil

### (POS-046-2024) NBT-based heterojunction photocatalysts processed by combustion thermal spraying for $\text{H}_2$ generation

A. I. Gutiérrez-Pérez<sup>\*1</sup>; J. S. Pérez Bedoya<sup>1</sup>; F. Méndez<sup>2</sup>

J. Muñoz Saldaña<sup>1</sup>

1. Cinvestav, CENAPROT, Mexico
2. CICATA, Mexico

### (POS-047-2024) Alkali activated cementitious material with low water content, applying the DMSI method

N. Bedoya<sup>\*1</sup>; A. H. Montilla<sup>1</sup>

1. National University of Colombia, Colombia

### (POS-048-2024) Use of eggshells as an alternative source of calcium to obtain apatites from a bioleaching rock phosphate

S. M. Restrepo Arcila<sup>\*1</sup>; M. A. Márquez<sup>1</sup>; J. P. Hernández<sup>1</sup>

1. Universidad Nacional de Colombia, Materials and nanotechnology, Colombia

### (POS-049-2024) Advancing Materials Science with Machine Learning: Predictions of Ferroelectric Perovskite Properties

H. N. Machado<sup>\*1</sup>; V. E. Vizcarra Ruiz<sup>1</sup>; G. S. Dias<sup>1</sup>

I. A. Santos<sup>1</sup>; V. F. Freitas<sup>2</sup>; R. Guo<sup>3</sup>; A. S. Bhalla<sup>3</sup>; L. F. Cótica<sup>1</sup>

1. State University of Maringa, Department of Physics, Brazil
2. Universidade Estadual do Centro-Oeste - Unicentro, Physics, Brazil
3. University of Texas, San Antonio, USA

### (POS-050-2024) Synthesis and Robocasting of Hydroxyapatite, Tricalcium phosphate and Wollastonite based composites

G. Rajan<sup>\*1</sup>

1. Anna University, India

### (POS-051-2024) Impact of Spark Plasma Sintering on the Properties of PLMN-13PT Ceramic

L. Davila Espinosa<sup>\*1</sup>; E. Betancur<sup>1</sup>; F. Badillo<sup>1</sup>; W. Nascimento<sup>2</sup>; J. Eiras<sup>3</sup>; D. Garcia<sup>3</sup>

1. Universidad de Antioquia, Columbia
2. Universidade Federal do Paraná, Brazil
3. Universidade Federal de São Carlos, Brazil

### (POS-052-2024) Using active methods for teaching materials courses in Engineering at Universidad de Antioquia

O. Pulgarin<sup>\*1</sup>; H. Colorado<sup>1</sup>

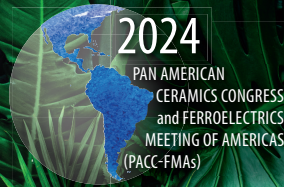
1. Universidad de Antioquia, Columbia

### (POS-053-2024) Phosphate ceramics: energy and environmental applications

O. Pulgarin<sup>\*1</sup>; H. Colorado<sup>1</sup>

1. Universidad de Antioquia, Columbia





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### Ferroelectrics Meeting of Americas

#### **FMA-Ferroics, bio-ferroics, multiferroics, bio-multiferroics, cross-coupled, and secondary ferroics**

#### **Room: Star Bay 3**

Session Chair: Luiz Cótica, State University of Maringa

#### **8:30 AM**

#### **(FMA-008-2024) Self-biased Hexagonal Ferrite-Spinel Ferrite Composites and Evidence for Strong Magneto-electric Coupling in Bilayers with PZT (Invited)**

S. Saha<sup>1</sup>; S. Acharya<sup>1</sup>; G. Srinivasan<sup>\*1</sup>

1. Oakland University, Physics, USA

#### **9:00 AM**

#### **(FMA-009-2024) On the physical properties of high-entropy BiFeO<sub>3</sub> nanoparticles**

M. D. Souza<sup>1</sup>; B. P. Cabral Jr.<sup>1</sup>; G. S. Dias<sup>1</sup>; L. F. Cótica<sup>1</sup>; I. A. Santos<sup>\*1</sup>

1. State University of Maringa, Department of Physics, Brazil

#### **9:20 AM**

#### **(FMA-010-2024) Characterization of Lanthanum-doped BiFeO<sub>3</sub> thin films for photovoltaic applications**

A. C. Ferreira<sup>\*1</sup>; I. A. Santos<sup>1</sup>; E. Castelli Astrath<sup>2</sup>; E. a. Volnistem<sup>1</sup>; B. P. Cabral Jr.<sup>1</sup>

1. State University of Maringá, Department of Physics, Brazil
2. Federal Institute of Paraná, Brazil

#### **9:40 AM**

#### **(FMA-011-2024) Cryomilled BiFeO<sub>3</sub>-Fe<sub>3</sub>O<sub>4</sub> Nanocomposites: Improving the Photocatalytic Degradation Activity of BiFeO<sub>3</sub>**

V. S. Silva<sup>1</sup>; E. a. Volnistem<sup>1</sup>; L. Cotica<sup>1</sup>; I. A. Santos<sup>1</sup>; G. S. Dias<sup>\*1</sup>

1. State University of Maringa, Department of Physics, Brazil

#### **10:00 AM**

#### **Break**

#### **10:30 AM**

#### **(FMA-013-2024) Magnetite-Based Biocompatible Nanostructures for Targeted Drug Delivery and Cancer Treatment: A Multifunctional Approach**

G. T. Colombo<sup>\*1</sup>; R. R. Vieira<sup>1</sup>; F. Rodrigues<sup>1</sup>; I. A. Santos<sup>1</sup>; G. S. Dias<sup>1</sup>; L. Cotica<sup>1</sup>

1. State University of Maringa, Department of Physics, Brazil

#### **10:50 AM**

#### **(FMA-014-2024) Multimagnetic Composite Materials for Wide-Aperture Applications (Invited)**

A. Chabanov<sup>\*1</sup>; N. Pyvovar<sup>1</sup>; I. Anisimov<sup>2</sup>; C. Pfeiffer<sup>2</sup>;

I. Vitebskiy<sup>2</sup>

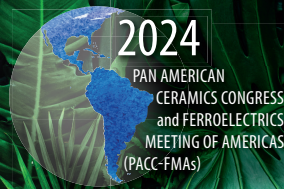
1. University of Texas at San Antonio, Physics and Astronomy, USA
2. AFRL, USA

#### **11:20 AM**

#### **(FMA-015-2024) Defect Engineered Complex Oxide Thin Films with Tunable Multifunctionalities (Invited)**

C. Chen<sup>\*1</sup>

1. University of Texas San Antonio, Physics and Astronomy, USA



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### PACC1 Functional Ceramics for Energy and Environment

#### PACC1-Functional Ceramics for Energy and Environment

##### Room: Mirage

Session Chairs: Eugene Medvedovski, Consultant;  
Juan Muñoz Saldaña, Cinvestav

##### 8:30 AM

#### (PACC1-006-2024) Bismuth titanates prepared by solid-state reaction and their photocatalytic activity in the degradation of rhodamine B

J. S. Pérez Bedoya<sup>\*2</sup>; A. I. Gutiérrez-Pérez<sup>2</sup>; M. T. Ayala-Ayala<sup>1</sup>; A. Benítez Castro<sup>2</sup>; M. Boujnah<sup>2</sup>; J. A. Díaz Real<sup>3</sup>; J. Muñoz Saldaña<sup>2</sup>

1. Universidad Autónoma de Querétaro, Facultad de Química, Mexico
2. Cinvestav, CENAPROT, Mexico
3. Centro de Investigación y Desarrollo Tecnológico en Electroquímica, CIDETEQ, Mexico

##### 8:50 AM

#### (PACC1-007-2024) Atom efficient pathways to alkali metal sulfide materials for sustainable energy storage

V. Brune<sup>\*1</sup>; S. Mathur<sup>2</sup>; T. Fischer<sup>2</sup>

1. University of Cologne, Chemistry, Germany
2. University of Cologne, Institute of Inorganic Chemistry, Germany

##### 9:10 AM

#### (PACC1-008-2024) Barium-Strontium-Nickel-Iron Mixed Oxides Functional Membranes for Dark Catalysis

V. V. Carvalho<sup>1</sup>; L. Grassi Maragno<sup>2</sup>; D. Ribas Gomes<sup>2</sup>; K. P. Furlan<sup>2</sup>; S. Y. Gómez González<sup>\*1</sup>

1. Federal University of Santa Catarina, Chemical Engineering, Brazil
2. Hamburg University of Technology, Institute of Advanced Ceramics, Integrated Materials Processing group, Germany

##### 9:30 AM

#### (PACC1-009-2024) Photocatalytic TiO<sub>2</sub> anatase-rutile homojunctions obtained by flame spray with high dye degradation efficiency

J. G. Sánchez Tovar<sup>\*1</sup>; J. S. Pérez Bedoya<sup>1</sup>; A. I. Gutiérrez-Pérez<sup>1</sup>; J. Muñoz Saldaña<sup>2</sup>

1. Cinvestav, Mexico
2. Cinvestav, CENAPROT, Mexico

##### 9:50 AM

##### Break

### PACC1-Functional Ceramics for Energy and Environment

Session Chairs: Neftali Carreno, Federal University of Pelotas; Jéssica de Oliveira, Embrapa Instrumentation

##### 10:20 AM

#### (PACC1-010-2024) Reactor Engineering for Optimization of Photoelectrochemical Performance in CO<sub>2</sub> Reduction to Methanol and Isopropanol

J. A. de Oliveira<sup>\*1</sup>; F. Souza<sup>2</sup>; G. da Silva<sup>3</sup>; J. da Cruz<sup>2</sup>; E. V. Santos<sup>4</sup>; S. Mathur<sup>5</sup>; C. Ribeiro<sup>1</sup>

1. Embrapa Instrumentation, Brazil
2. University of Sao Paulo, IQSC, Brazil
3. Federal University of Sao Carlos, Brazil
4. Federal University of Rio Grande do Norte, Brazil
5. University of Cologne, Institute of Inorganic Chemistry, Germany

##### 10:40 AM

#### (PACC1-011-2024) Plasma Enhanced Chemical Vapor Deposition and Post-Treatment for Electrode Improvement in Lithium-Ion Batteries

D. Patrun<sup>\*1</sup>; Z. Aytuna<sup>2</sup>; S. Mathur<sup>1</sup>

1. University of Cologne, Institute of Inorganic Chemistry, Germany
2. Institute of inorganic Chemistry, Department of Chemistry, Germany

##### 11:00 AM

#### (PACC1-012-2024) Development of thin film UT sensor for high temperature (Invited)

M. Kubo<sup>\*1</sup>; Y. Okajima<sup>1</sup>; Y. Takeda<sup>1</sup>; Y. Tsuru<sup>1</sup>; Y. Yamamoto<sup>1</sup>; S. Kawanami<sup>1</sup>

1. Mitsubishi Heavy Industries, LTD., Research & Innovation Center, Japan

##### 11:30 AM

#### (PACC1-013-2024) Ferrochromic ε-WO<sub>3</sub>: The Unique Electrochromism of a Unique Binary Ferroelectric

A. Annerino<sup>\*1</sup>; J. Shell<sup>1</sup>; P. Gouma<sup>1</sup>

1. The Ohio State University, Department of Materials Science and Engineering, USA

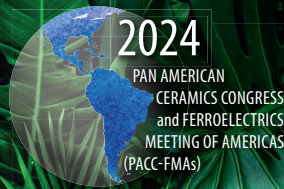
##### 11:50 AM

#### (PACC1-014-2024) Effect on powder properties of thin film coatings by plasma sputtering

C. Bedoya-Lopez<sup>\*1</sup>; S. Vargas<sup>1</sup>; D. Galeano-Osorio<sup>1</sup>; C. E. Castano<sup>1</sup>

1. Virginia Commonwealth University, Mechanical And Nuclear Engineering, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC3 Densification and Microstructural Evolution in Ceramics During Sintering**

#### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Novel sintering processes**

**Room: Millenium**

Session Chair: Dachamir Hotza, Federal University of Santa Catarina

**8:30 AM**

##### **(PACC3-005-2024) Advanced processing of barium zirconate-based protonic conductors by cold sintering (Invited)**

M. Bram<sup>\*1</sup>; M. Kindelmann<sup>2</sup>; J. Mayer<sup>3</sup>; O. Guillon<sup>1</sup>

1. Forschungszentrum Juelich, Institute IEK-1, Germany
2. Forschungszentrum Juelich, ERC, Germany
3. RWTH Aachen University, GfE, Germany

**9:00 AM**

##### **(PACC3-006-2024) Development of high toughness tetragonal zirconia ceramics by conventional/field-assisted sintering routes (Invited)**

H. Yoshida<sup>\*1</sup>; F. Ong<sup>1</sup>; K. Kawamura<sup>2</sup>; K. Hosoi<sup>2</sup>; K. Matsui<sup>3</sup>; B. Feng<sup>4</sup>; Y. Ikuhara<sup>5</sup>

1. The University of Tokyo, Materials Science and Engineering, Japan
2. Tosoh Corporation, Inorganic Materials Research Laboratory, Japan
3. Institute of Engineering Innovation, The University of Tokyo, Next Generation Zirconia Social Cooperation Program, Japan
4. The University of Tokyo, Japan
5. University of Tokyo, Institute of Engineering Innovation, Japan

**9:30 AM**

##### **(PACC3-007-2024) Effect of Electric Field/Current on High Temperature Processing of Zirconia Ceramics (8Y-CSZ) (Invited)**

K. Morita<sup>\*1</sup>

1. National Institute for Materials Science (NIMS), Japan

**10:00 AM**

**Break**

### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Novel sintering processes**

Session Chair: Hector Camacho Montes, Universidad Autonoma de Ciudad Juarez

**10:30 AM**

##### **(PACC3-008-2024) Generation of Dense Ceramic Coatings based on Alumina and Zirconia by Laser Treatment to protect Light Metals (Invited)**

G. Motz<sup>\*1</sup>; A. Horcher<sup>1</sup>; K. Tangermann-Gerk<sup>2</sup>; S. Schaffoener<sup>1</sup>

1. University of Bayreuth, Ceramic Materials Engineering, Germany
2. BLZ GmbH, Germany

**11:00 AM**

##### **(PACC3-010-2024) The Effect of Sintering Temperature on the Density, Porosity and Dielectric Properties of SPS Sintered Alumina Nanoparticles**

B. Wu<sup>\*1</sup>; R. A. Gerhardt<sup>1</sup>

1. Georgia Institute of Technology, Materials Science and Engineering, USA



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC5 Advances in Cements, Geopolymers, and Structural Clay Construction Materials**

#### **PACC5-Advances in Cements, Geopolymers, and Structural Clay Materials**

##### **Room: Portofino**

Session Chair: Ana Fernandez, Instituto Ciencias de la  
Construcción Eduardo Torroja (IETcc-CSIC)

##### **8:40 AM**

#### **(PACC5-007-2024) Clay and calcium carbonate synergies as low carbon footprint supplementary cementitious materials**

R. Desch<sup>\*1</sup>; C. Baker<sup>1</sup>; K. Mirkovic<sup>1</sup>

1. Omya Inc., USA

##### **9:00 AM**

#### **(PACC5-008-2024) Evaluation of the Use Potential of Hardened Calcined Volcanic Ash: An Experimental Approach to Strength Optimization and Mix Ratio Design**

P. I. Cuello<sup>\*1</sup>; S. Avudaiappan<sup>1</sup>; L. Montoya<sup>1</sup>; C. Canales<sup>2</sup>;  
E. Saavedra Flores<sup>3</sup>

1. Universidad de Concepción, Ingeniería Civil Química,  
Chile
2. Universidad de Concepción, Ingeniería Civil Mecánica,  
Chile
3. Universidad de Santiago de Chile, Ingeniería en Obras  
civiles, Chile

##### **9:20 AM**

#### **(PACC5-009-2024) Influence of recycled aggregates on the mechanical performance and workability of sustainable pastes and mortars**

A. Bohorquez<sup>\*1</sup>; A. C. Diaz Garcia<sup>1</sup>;  
A. H. Montilla<sup>2</sup>; J. I. Tobón<sup>1</sup>

1. Universidad Nacional de Colombia, Materials and  
Minerals, Colombia
2. Universidad Nacional de Colombia, Construction School,  
Colombia

##### **9:40 AM**

#### **(PACC5-010-2024) Effect of nanosilica drying shrinkage in white cement**

J. A. Quiroz<sup>\*1</sup>; J. I. Tobón<sup>1</sup>

1. Universidad Nacional de Colombia, Materiales y  
Minerales, Colombia

##### **10:00 AM**

#### **Break**

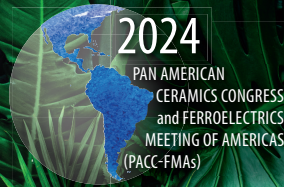
##### **10:30 AM**

#### **(PACC5-011-2024) Influence on conditions in burning chemically pretreated rice husk for improvement of reactive amorphous phase content**

N. Villa Perez<sup>\*1</sup>; F. D. Cabrera Poloche<sup>1</sup>; J. I. Tobón<sup>1</sup>;  
A. H. Montilla<sup>1</sup>

1. Universidad Nacional de Colombia, Grupo del Cemento  
y Materiales de Construcción-CEMATCO, Facultad  
de Minas, Departamento de Materiales y Minerales,  
Colombia





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### PACC6 Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability

#### PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability

##### Room: Revolution

Session Chairs: Yawei Li, Wuhan University of Science and Technology; Silvia Camelli, Instituto Argentino de Siderurgia

##### 8:30 AM

##### **(PACC6-010-2024) MgO-graphite refractories: Smart and self-healing materials (Invited)**

C. Baudin<sup>\*2</sup>; A. H. de Aza<sup>2</sup>; S. Serena<sup>2</sup>; Á. Caballero<sup>2</sup>; P. Acosta<sup>1</sup>; E. Quirós<sup>1</sup>; J. F. Almagro<sup>1</sup>

1. ACERINOX EUROPA, S.A.U., Technical Department, Spain
2. Instituto de Cerámica y Vidrio, CSIC, Spain

##### 9:00 AM

##### **(PACC6-011-2024) Sustainable aluminas: a new player in South America (Invited)**

P. Bonadia<sup>\*1</sup>; M. A. Quintela<sup>3</sup>; A. L. São José<sup>1</sup>; M. Suster<sup>2</sup>; J. Knox<sup>4</sup>

1. ACTECH, R&D, Brazil
2. ACTECH, Sales, Brazil
3. ACTECH, CEO, Brazil
4. ACTECH, Operations, USA

##### 9:20 AM

##### **(PACC6-012-2024) Refractory ceramic interactions with medium temperature hydrogen-containing atmospheres**

M. Lambert<sup>\*1</sup>; G. Hallum<sup>1</sup>; S. Campbell<sup>1</sup>; D. Goski<sup>1</sup>

1. Allied Mineral Products, LLC, USA

##### 9:40 AM

##### **(PACC6-013-2024) The Role of Thermomechanical Stresses in the Explosive Spalling of Refractory Castables - A Numerical Study**

M. H. Moreira<sup>\*1</sup>; R. F. Ausas<sup>2</sup>; S. Dal Pont<sup>3</sup>; V. Pandolfelli<sup>1</sup>

1. Federal University of Sao Carlos, Graduate Program in Materials Science and Engineering, Brazil
2. University of São Paulo, Institute of Mathematics and Computer Sciences, Brazil
3. Université Grenoble Alpes, CNRS, Grenoble INP, 3SR, France

##### 10:00 AM

##### Break

### PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability

Session Chairs: Carmen Baudin, Instituto de Cerámica y Vidrio, CSIC; Carlos Pagliosa, RHI MAGNESITA

##### 10:30 AM

##### **(PACC6-014-2024) Alumina Carbon Sliding Plate for Continuous Casting: The State of the art (Invited)**

Y. Li<sup>\*1</sup>

1. Wuhan university of science and technology, China

##### 11:00 AM

##### **(PACC6-015-2024) Improving refractories performance using traceability in complete manufacturing chain (Invited)**

F. C. Figueiredo<sup>\*1</sup>; A. C. Camillo<sup>2</sup>; M. G. Campos<sup>2</sup>

1. Shinagawa Refractory, Industrial, Brazil
2. Universidade Federal de São Carlos, Brazil

##### 11:20 AM

##### **(PACC6-016-2024) The role played by non-stoichiometric spinel formation on the expansion of Al<sub>2</sub>O<sub>3</sub>-based refractories**

O. H. Borges<sup>\*1</sup>; L. Z. Falsetti<sup>1</sup>; C. Aneziris<sup>2</sup>; V. Pandolfelli<sup>1</sup>

1. Federal University of São Carlos, Materials Engineering Department (DEMa), Brazil
2. TU Bergakademie Freiberg, Keramik, Feuerfest und Verbundwerkstoffe, Germany

##### 11:40 AM

##### **(PACC6-017-2024) Driving Sustainability and Excellence: Batek Industrial Minerals' Leadership in Eco-Friendly Refractory Solutions**

R. T. Noronha<sup>\*1</sup>; L. M. NORONHA<sup>1</sup>

1. BAUTEK, Brazil



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC8 Processing and Manufacturing Technologies and Materials for a Sustainable Future**

#### **PACC 8-Processing and Manufacturing Technologies and Materials for Sustainable Future**

**Room: Ocean 1**

Session Chair: Surojit Gupta, University of North Dakota

**8:30 AM**

**(PACC8-001-2024) Current status and future trends  
in the research of nanocarbon added silicon nitrides  
(Invited)**

C. Balazsi<sup>\*1</sup>; K. Balazsi<sup>2</sup>

1. Centre for Energy Research, HUN-REN, Hungary
2. Centre for Energy Research HUN-REN, Thin Film Physics, Hungary

**9:00 AM**

**(PACC8-002-2024) Fabrication of magnetic  
pseudocapacitive ceramic electrodes for energy storage  
in supercapacitors (Invited)**

I. Zhitomirsky<sup>\*1</sup>

1. McMaster University, Canada

**9:30 AM**

**(PACC8-003-2024) Advanced Oxide Thin Films Prepared  
by Circulating Manufacturing using Ptoho Reaction  
Process (Invited)**

T. Tsuchiya<sup>\*1</sup>

1. National Institute of Advanced Industrial Science and Technology (AIST), Japan

**10:00 AM**

**Break**

**10:30 AM**

**(PACC8-004-2024) Unveiling Energy-Saving Potentials in  
Refractory Castables Drying: Fundamentals, Predictions  
and Insights**

M. H. Moreira<sup>\*1</sup>; T. M. Cunha<sup>1</sup>; F. Penteadó Schmdit<sup>1</sup>;  
M. F. Dos Santos<sup>3</sup>; S. Dal Pont<sup>4</sup>; V. Pandolfelli<sup>2</sup>

1. Federal University of Sao Carlos, Graduate Program in Materials Science and Engineering, Brazil
2. Federal University of Sao Carlos, Brazil
3. Federal University of Sao Carlos, Department of Materials Engineering, Brazil
4. Université Grenoble Alpes, 3SR, France

**10:50 AM**

**(PACC8-005-2024) Molten-Salt Synthesis of  
Nanostructured Materials**

Y. Mao<sup>\*1</sup>

1. Illinois Institute of Technology, Department of Chemistry, USA

**11:10 AM**

**(PACC8-006-2024) Developing Novel Practices for  
Designing Sustainable Materials**

S. Gupta<sup>\*1</sup>

1. University of North Dakota, Mechanical Engineering, USA

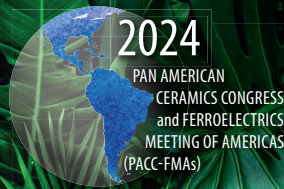
**11:30 AM**

**(PACC8-007-2024) Utilization of Ferronickel Slags for  
Carbon Dioxide Capture**

M. Naranjo Santos<sup>\*1</sup>; I. Cetina<sup>1</sup>; A. Joya<sup>1</sup>; L. Mujica<sup>1</sup>;  
J. Jiménez<sup>1</sup>

1. Universidad Pedagógica y Tecnológica de Colombia, Boyaca, Colombia





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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No photography/  
recording

## —TUESDAY—

### **PACC9 Materials Approach to Art, Archaeology and Architecture in Americas II**

#### **PACC9-Materials Approach to Art, Arch, and Architecture in the Americas: Historic and Contemporary Collections**

##### **Room: Venetian**

Session Chair: Molly McGath, The Mariners' Museum and Park

##### **8:30 AM**

##### **(PACC9-010-2024) Evaluating Sulfur Chemistry for Extraction from Waterlogged Organic Objects**

L. Kiple\*<sup>1</sup>; M. K. McGath<sup>1</sup>; E. Sangouard<sup>1</sup>

1. The Mariners' Museum and Park, Batten Conservation Complex, USA

##### **8:50 AM**

##### **(PACC9-011-2024) Reconstruction of the Leather Shoes of the H.L. Hunley Submarine**

M. Allen\*<sup>1</sup>

1. Clemson University, Warren Lasch Conservation Center, USA

##### **9:10 AM**

##### **(PACC9-012-2024) Analyzing and Recreating 18th Century European Porcelain: Microstructural Evolution Study**

G. M. Dunham\*<sup>1</sup>; W. Carty<sup>1</sup>; T. Lam<sup>2</sup>; S. Barack<sup>3</sup>; J. Walthew<sup>3</sup>

1. Alfred University, USA
2. Smithsonian, Museum Conservation Institute, USA
3. Smithsonian, Cooper Hewitt Design Museum, USA

##### **9:30 AM**

##### **(PACC9-013-2024) Study on the aging behavior of natural rubber latex (*Hevea brasiliensis*)**

C. Bisulca\*<sup>1</sup>; E. Homberger<sup>1</sup>; M. Delidow<sup>2</sup>

1. Detroit Institute of Arts, USA
2. Whitney Museum of American Art, USA

### **PACC9-Materials Approach to Art, Arch, and Architecture in the Americas: Study of Stone Tools and Ornaments**

Session Chair: Fumie Iizuka, University of Missouri

##### **9:50 AM**

##### **Break**

##### **10:30 AM**

##### **(PACC9-014-2024) Identification and Provenance Evaluation of Archaeological Emeralds from Panama, Colombia and Ecuador using a pXRF (Invited)**

C. Mayo-TORNÉ\*<sup>1</sup>; J. Mayo<sup>1</sup>; A. Hancock<sup>1</sup>

1. Fundacion El Caño, Panama

##### **11:00 AM**

##### **(PACC9-015-2024) Lapidary ornaments in the Caribbean islands during the Ceramic Age**

A. Queffelec\*<sup>1</sup>

1. CNRS, Univ. Bordeaux, UMR5199 PACEA, France

##### **11:20 AM**

##### **(PACC9-016-2024) Obsidian in the West Indies? Mysterious Ceramic Age glass artefacts in the Lesser Antilles**

A. Leck\*<sup>1</sup>; L. Bellot-Gurlet<sup>2</sup>; G. Carazzo<sup>3</sup>; B. Gratuze<sup>4</sup>;  
J. Langlade<sup>5</sup>; F. Le Bourdonnec<sup>6</sup>; C. Leandri<sup>7</sup>; I. Shearn<sup>8</sup>;  
C. Stouvenot<sup>9</sup>; A. Queffelec<sup>10</sup>

1. University of Bordeaux, CNRS, UMR5199 PACEA, France
2. Sorbonne Université, CNRS, UMR8233 MONARIS, France
3. Univ. Paris Cité, CNRS, Institut de Physique du Globe de Paris (IPGP), France
4. Univ. d'Orléans, CNRS, UMR7065 IRAMAT-CEB, France
5. Univ. Brest, CNRS, UAR3113, France
6. Univ. Bordeaux Montaigne, CNRS, UMR6034 Archéosciences Bordeaux, France
7. Ministère de la Culture, SRA Corse, France
8. Morgan State University, USA
9. Ministère de la Culture, SRA Guadeloupe, France
10. CNRS, Univ. Bordeaux, UMR5199 PACEA, France

##### **11:40 AM**

##### **(PACC9-017-2024) Quartz and Co.: Diversity of Silicites in the Lesser Antilles and their Exploitation in Prehistoric Times**

V. Delvigne\*<sup>1</sup>; M. de Parthenay<sup>1</sup>; S. Knippenberg<sup>2</sup>;  
C. Stouvenot<sup>3</sup>; B. Bérard<sup>4</sup>; A. Queffelec<sup>5</sup>

1. CNRS, Umr 8068 temps, France
2. Archeologisch Onderzoek Leiden BV, Netherlands
3. Service régional de l'archéologie; DAC Guadeloupe, France
4. Université des Antilles, Department of History, France
5. CNRS, Univ. Bordeaux, UMR5199 PACEA, France

##### **12:00 PM**

##### **(PACC9-018-2024) Experimental Replication and Material Analysis of Celtiform Pendants from pre-Columbian Costa Rica**

W. Kuboyama-Haraikawa\*<sup>1</sup>

1. Tohoku University, Japan



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —TUESDAY—

### PACC10 2D Materials: Synthesis, Properties and Applications

#### **PACC10-2D Materials Synthesis, Properties, and Applications**

**Room: Vitri**

Session Chairs: Andreas Rosenkranz, University of Chile;  
Christopher Shuck, Rutgers University

**8:30 AM**

**(PACC10-008-2024) Unraveling magnetic domain  
behavior in van der Waals ferromagnets using Lorentz  
transmission electron microscopy (Invited)**

C. M. Phatak\*<sup>1</sup>

1. Argonne National Laboratory, Materials Science Division,  
USA

**9:00 AM**

**(PACC10-009-2024) True Atomic-Resolution Surface  
Imaging under Ambient Conditions via Conductive  
Atomic Force Microscopy (Invited)**

M. Z. Baykara\*<sup>1</sup>

1. University of California, Merced, Department of  
Mechanical Engineering, USA

**9:30 AM**

**(PACC10-010-2024) Nanocarbon bioelectronics: From  
cellular investigations to clinical translation (Invited)**  
R. Garg\*<sup>1</sup>

1. University of Pennsylvania, USA

**10:00 AM**

**Break**

**10:30 AM**

**(PACC10-011-2024) Energy harvesting performance  
of lead-free multifunctional poly(vinylidene fluoride)  
(PVDF)/CoFe<sub>2</sub>O<sub>4</sub> fiber composite films**

D. Pabba\*<sup>1</sup>

1. Universidad Tecnológica Metropolitana,  
Campus Macul, Chile

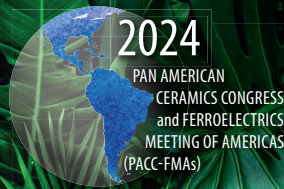
**10:50 AM**

**(PACC10-012-2024) Additive manufacturing of Two-  
dimensional nanomaterial inks for energy harvesting,  
storage and sensing (Invited)**

T. Varghese\*<sup>1</sup>; F. Rajabi\_Kouchi<sup>1</sup>; A. Pratap<sup>1</sup>; F. White<sup>1</sup>;  
D. Estrada<sup>1</sup>

1. Boise State University, Materials Science and  
Engineering, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —TUESDAY—

### **PACC12 Ceramics and Materials Education in the Americas**

#### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-K - 12/Undergraduate**

##### **Room: Bellagio**

Session Chair: Sylvia Johnson, NASA-Ames Research Center (ret.)

**8:30 AM**

**(PACC12-001-2024) How materials science and engineering has changed in the last 50 years (Invited)**

R. A. Gerhardt\*<sup>1</sup>

1. Georgia Institute of Technology, Materials Science and Engineering, USA

**8:50 AM**

**(PACC12-002-2024) NorCal STEM Mentorship Chain (Invited)**

S. J. McCormack\*<sup>1</sup>

1. University of California, Davis, Materials Science and Engineering, USA

**9:10 AM**

**(PACC12-003-2024) Science for society: Expanding access to materials science education in both formal and informal learning settings (Invited)**

L. McDonald\*<sup>1</sup>; A. Engen<sup>1</sup>

1. The American Ceramic Society, USA

**9:30 AM**

**(PACC12-004-2024) Ceramics Outreach: Inquiry based outcomes using near-peer teachers (Invited)**

J. S. Ibañez Sotelo\*<sup>1</sup>; M. I. Cruz Fernandez<sup>1</sup>; K. Muñoz Pulido<sup>2</sup>; J. D. Avellaneda Martinez<sup>1</sup>; E. M. Vargas Pineda<sup>1</sup>; X. A. Velásquez<sup>2</sup>; J. Roa-Rojas<sup>1</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad Nacional de Colombia, Física, Colombia

**9:50 AM**

**Break**

#### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-Undergraduate**

Session Chair: Kelley Wilkerson, Missouri S & T University

**10:20 AM**

**(PACC12-005-2024) Ceramics at Colorado School of Mines: a New Ceramic Engineering Degree (Invited)**

I. Reimanis\*<sup>1</sup>

1. Colorado School of Mines, USA

#### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-Graduate**

Session Chair: Kelley Wilkerson, Missouri S & T University

**11:00 AM**

**(PACC12-006-2024) Trends and Aspirations for a 21<sup>st</sup> Century Graduate School (Invited)**

D. P. Butt\*<sup>1</sup>

1. University of Utah, The Graduate School, USA

**11:20 AM**

**(PACC12-007-2024) The Future of Materials Research and Graduate Education in the United States (Invited)**

Y. Gogotsi\*<sup>1</sup>

1. Drexel University, USA

**11:40 AM**

**(PACC12-008-2024) Ceramic Horizons in Chile: Tasting the wine with a sip and savor (Invited)**

M. Viswanathan\*<sup>1</sup>

1. Universidad Adolfo Ibáñez, Faculty of Engineering and Sciences, Chile



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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recording

## —TUESDAY—

### Ferroelectrics Meeting of Americas

#### **FMA-Ferroics, bio-ferroics, multiferroics, bio-multiferroics, cross-coupled, and secondary ferroics**

#### **Room: Star Bay 3**

Session Chair: Avadh Saxena, Los Alamos National Lab

#### **1:30 PM**

#### **(FMA-016-2024) The influence of line defects on the magnetic response of BiFeO<sub>3</sub> nanoparticles (Invited)**

E. a. Volnistem<sup>1</sup>; R. C. Oliveira<sup>2</sup>; G. S. Dias<sup>1</sup>; L. F. Cótica<sup>1</sup>; I. A. Santos<sup>\*1</sup>

1. State University of Maringa, Physics, Brazil
2. State University of Maringá, PFI, Brazil

#### **2:00 PM**

#### **(FMA-017-2024) Ferroic properties of BiFeO<sub>3</sub>-doped ceramics sintered under meta-stable conditions**

R. C. Oliveira<sup>1</sup>; E. a. Volnistem<sup>1</sup>; M. A. Melo<sup>1</sup>; L. Cotica<sup>1</sup>; I. A. Santos<sup>1</sup>; J. A. Eiras<sup>2</sup>; d. Garcia<sup>2</sup>; D. Menzel<sup>3</sup>; S. Süllow<sup>3</sup>; G. S. Dias<sup>\*1</sup>

1. State University of Maringa, Department of Physics, Brazil
2. Federal University of Sao Carlos, Physics, Brazil
3. Technische Universität Braunschweig, Institut für Physik der Kondensierten Materie, Germany

#### **2:20 PM**

#### **(FMA-018-2024) Cryomilling effects on structural, microstructural and magnetic properties of BiFeO<sub>3</sub> nanoparticles**

H. N. Machado<sup>\*1</sup>; L. Cotica<sup>2</sup>; I. A. Santos<sup>2</sup>; G. S. Dias<sup>2</sup>

1. Universidade Estadual de Maringá, Departamento de Física, Brazil
2. State University of Maringa, Department of Physics, Brazil

#### **2:40 PM**

#### **(FMA-019-2024) Designing Room Temperature Nanoscale Multiferroic Thin Films and Multilayers with strong magnetoelectric couplings (Invited)**

R. Katiyar<sup>\*1</sup>

1. University of Puerto Rico, Physics, USA

#### **3:10 PM**

#### **Break**

#### **3:40 PM**

#### **(FMA-020-2024) Zinc Oxide Piezophotonics: Evaluation and Demonstration of Additive Fabrication Techniques**

S. Garnsey<sup>\*1</sup>; P. Flynn<sup>1</sup>; L. Santillan<sup>1</sup>; S. Dey<sup>1</sup>; C. Acosta<sup>1</sup>; R. Guo<sup>1</sup>; A. S. Bhalla<sup>1</sup>

1. University of Texas, San Antonio, USA

#### **4:00 PM**

#### **(FMA-021-2024) Electric-field Dipole Engineering at the Nanoscale (E-DENS)**

S. Tidrow<sup>\*1</sup>

1. Alfred University, New York State College of Ceramics, USA

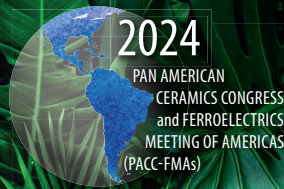
#### **4:20 PM**

#### **(FMA-022-2024) Room-temperature multiferroic and magnetoelectric properties of single phase Aurivillius ceramics (Invited)**

J. A. Eiras<sup>\*1</sup>; M. S. Alkathy<sup>1</sup>; I. A. Santos<sup>2</sup>; F. L. Zabotto<sup>1</sup>; E. B. Araujo<sup>3</sup>; M. H. Lente<sup>4</sup>

1. Federal University of Sao Carlos, Physics, Brazil
2. State University of Maringa, Physics, Brazil
3. UNESP/Ilha Solteira, Physics, Brazil
4. UNIFESP, Physics, Brazil





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### PACC2 Advanced Ceramics and Composites

#### PACC2-Advanced Ceramics and Composites

##### Room: Mirage

Session Chairs: Zilong Hua, Idaho National Lab;  
Lionel Vargas, US Army Research Laboratory

##### 1:30 PM

#### (PACC2-001-2024) Experimental investigation of thermal conductivity of high entropy ceramics (Invited)

Z. Hua<sup>\*1</sup>; L. Trinh<sup>2</sup>; X. Chen<sup>2</sup>; L. Wadle<sup>2</sup>; C. Dennett<sup>4</sup>; L. He<sup>3</sup>; L.  
Malakkal<sup>5</sup>; B. Cui<sup>2</sup>; K. Bawane<sup>5</sup>

1. Idaho National Lab, Materials Science and Manufacturing, USA
2. University of Nebraska, Lincoln, Mechanical and Materials Engineering, USA
3. North Carolina State University, Nuclear Engineering, USA
4. Massachusetts Institute of Technology, USA
5. Idaho National Lab, USA

##### 2:00 PM

#### (PACC2-002-2024) Effect of Filler size and shape on the properties of Beta Silicon Carbide Alumina Composites

R. Titus<sup>\*1</sup>; R. A. Gerhardt<sup>1</sup>

1. Georgia Institute of Technology, Materials Science and Engineering, USA

##### 2:20 PM

#### (PACC2-003-2024) Microstructural Impact on Ceramics by Means of Synchrotron X-Ray Tomography

P. Campos de Oliveira<sup>\*1</sup>; C. Remacha<sup>1</sup>; G. Bruno<sup>3</sup>;  
H. Markötter<sup>2</sup>; W. Zhang<sup>1</sup>

1. Safran, France
2. BAM Federal Institute for Materials Research and Testing, Germany
3. BAM Federal Institute for Materials Research and Testing, 8.5, Germany

##### 2:40 PM

#### (PACC2-004-2024) Gas Sensing with Metal Oxide-Polyaniline Composites

A. Annerino<sup>\*1</sup>; P. Gouma<sup>1</sup>

1. The Ohio State University, Department of Materials Science and Engineering, USA

##### 3:00 PM

#### (PACC2-005-2024) Design of a New Ceramic Castable for Investment Casting of Turbine Blades

M. J. Smedes<sup>\*1</sup>; D. Gruber<sup>2</sup>; W. Zhang<sup>1</sup>

1. SAFRAN, PFX, France
2. MontanUniversityet Leoben, Mineral Resources Engineering, Austria

##### 3:20 PM

#### Break

##### 3:50 PM

#### (PACC2-006-2024) Tailorability of Ceramic Composites through Advanced Manufacturing Science and Design (Invited)

L. R. Vargas-Gonzalez<sup>\*1</sup>; N. Ku<sup>1</sup>; M. Guziewski<sup>1</sup>; J. Pelz<sup>1</sup>

1. U.S. Army DEVCOM Army Research Laboratory, Army Research Directorate, USA

##### 4:20 PM

#### (PACC2-007-2024) Ethanamine-assisted controllable ZnO architectures and their microstructural and emission characteristics

P. Thangaraj<sup>\*1</sup>; M. Viswanathan<sup>2</sup>; K. Balasubramanian<sup>4</sup>;  
M. Gracia Pinilla<sup>3</sup>

1. Indian Institute of Information Technology Design and Manufacturing Kurnool, Sciences, India
2. Universidad Adolfo Ibáñez, Faculty of Engineering and Sciences, Chile
3. Universidad Autónoma de Nuevo León, Facultad de Ciencias Físico-Matemáticas, Mexico
4. National Institute of Technology (NIT), Physics, India



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC3-Densification and Microstructural Evolution in Ceramics During Sintering**

#### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Modeling and simulation of sintering**

**Room: Millenium**

Session Chair: Hector Camacho Montes, Universidad  
Autonoma de Ciudad Juarez

**1:30 PM**

#### **(PACC3-011-2024) Ultrafast Sintering with and without Electric Fields and Field Effects on Microstructural Evolution (Invited)**

J. Luo\*<sup>1</sup>

1. University of California, San Diego, USA

**2:00 PM**

#### **(PACC3-012-2024) Advancing Sintering from Edisonian to High-Throughput Materials Discovery (Invited)**

C. Haines\*<sup>1</sup>

1. US Army DEVCOM-ARL, USA

**2:30 PM**

#### **(PACC3-013-2024) Machine Learning of Constitutive Laws for Sintering Deformation (Invited)**

J. Pan\*<sup>1</sup>; R. He<sup>1</sup>; P. Polak<sup>1</sup>; B. Saleem<sup>1</sup>; X. Yu<sup>1</sup>

1. University of Leicester, Engineering, United Kingdom

**3:00 PM**

**Break**

### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Modeling and simulation of sintering**

Session Chair: Rajendra Bordia, Clemson University

**3:40 PM**

#### **(PACC3-014-2024) Strategies to improve energy efficiency of ceramic tile firing and the sustainability of the whole process (Invited)**

A. D. Junior\*<sup>1</sup>

1. Federal University of Santa Catarina, Chemical  
Engineering, Brazil

**4:10 PM**

#### **(PACC3-015-2024) Simulation of Fast-Firing Densification by the Discrete Element Method**

M. H. Teixeira<sup>2</sup>; S. Y. Gomez Gonzalez<sup>1</sup>; J. Batista Rodrigues<sup>1</sup>;  
D. Hotza\*<sup>1</sup>

1. Federal University of Santa Catarina, Brazil
2. Federal University of Santa Catarina, Graduate Program  
in Materials Science and Engineering, Brazil

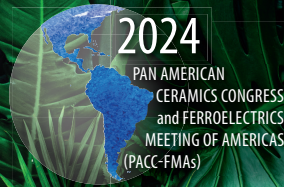
**4:30 PM**

#### **(PACC3-016-2024) Simulation of the firing process for tile clay traditional ceramics**

H. Camacho Montes\*<sup>1</sup>; A. Garcia Reyes<sup>2</sup>; Y. Espinosa  
Almeyda<sup>1</sup>; R. Bordia<sup>3</sup>

1. Universidad Autonoma de Ciudad Juarez, Physics and  
Mathematics, Mexico
2. PROQUIMAR, Mexico
3. Clemson University, Materials Science and Engineering,  
USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC6 Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

#### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

##### **Room: Revolution**

Session Chairs: Fernanda Figueiredo, Shinagawa Refractory; Marc Huger, IRCER - UMR CNRS 7315

**1:30 PM**

##### **(PACC6-018-2024) Refractory Technology and Sustainability: Innovations Shaping the Future of Environmental Impact Mitigation (Invited)**

D. Galesi<sup>\*1</sup>; V. Ramos<sup>1</sup>; E. Sako<sup>1</sup>; P. Brum<sup>1</sup>; H. Orsolini<sup>1</sup>; D. Hespanhol<sup>1</sup>; R. Montuori<sup>1</sup>

1. Shinagawa Refractories, Technical Department, Brazil

**2:00 PM**

##### **(PACC6-019-2024) A comparative study on slag corrosion resistance of gahnite and magnesium aluminate spinel (Invited)**

M. Mahapatra<sup>\*1</sup>; R. D. Ramteke<sup>1</sup>; J. G. Hemrick<sup>2</sup>

1. University of Alabama at Birmingham, USA
2. Oak Ridge National Laboratory, USA

**2:20 PM**

##### **(PACC6-020-2024) Numerical simulations for weep hole design and the effects on the drying step of refractory castable lining**

T. M. Cunha<sup>\*1</sup>; M. H. Moreira<sup>1</sup>; R. A. Angélico<sup>2</sup>; V. Pandolfelli<sup>1</sup>

1. UFSCar, Materials Science and Engineering, Brazil
2. USP, Department of Aeronautical Engineering, Brazil

**2:40 PM**

##### **(PACC6-021-2024) Polymeric Fibers Effect on the Unidirectional Drying of Refractory Castables via Neutron Tomography**

M. H. Moreira<sup>\*1</sup>; S. Dal Pont<sup>2</sup>; A. Tengattini<sup>2</sup>; V. Pandolfelli<sup>1</sup>

1. Federal University of Sao Carlos, Graduate Program in Materials Science and Engineering, Brazil
2. Université Grenoble Alpes, CNRS, Grenoble INP, 3SR, France

**3:00 PM**

**Break**

### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

Session Chairs: Manoj Mahapatra, University of Alabama at Birmingham; Douglas Galesi, Shinagawa Refractories

**3:30 PM**

##### **(PACC6-022-2024) Optimization of refractory processing through fiber addition: Temperature and porosity distribution effects in a low cement castable as a case of study (Invited)**

M. Miranda<sup>1</sup>; G. Sanchez<sup>\*1</sup>; H. Peng<sup>2</sup>; A. Pola<sup>3</sup>; E. Cedillo<sup>1</sup>; A. Gonzalez<sup>1</sup>

1. Pyrotek Inc., Mexico
2. Elkem Silicon Products, Norway
3. UNAM, Mexico

**4:00 PM**

##### **(PACC6-023-2024) Traditional refractory designs replaced by innovative refractory solutions in hot blast stoves (Invited)**

J. D. Carreau<sup>\*1</sup>; F. van Laar<sup>1</sup>

1. Allied Mineral Technical Services, Canada

**4:20 PM**

##### **(PACC6-024-2024) Porous plug's surface wettability and the influence of bubble size on the flotation of non-metallic inclusions**

L. Z. Falsetti<sup>\*1</sup>; F. Charruault<sup>3</sup>; B. Luchini<sup>3</sup>; D. van der Plas<sup>3</sup>; R. Delfos<sup>2</sup>; V. Pandolfelli<sup>1</sup>

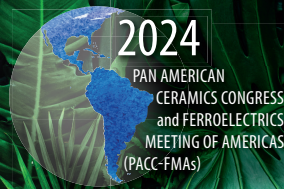
1. Federal University of Sao Carlos, Brazil
2. TUDelft, 3mE, Netherlands
3. Tata Steel Nederland, Netherlands

**4:40 PM**

##### **(PACC6-025-2024) Web System For Management Of The Steel Ladle Lining Wear And Shell Temperatures**

M. F. Dos Santos<sup>\*1</sup>; T. M. Portilho<sup>1</sup>

1. Federal University of Sao Carlos, Department of Materials Engineering, Brazil



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### PACC7 Science and Technology of Glasses, Glass Ceramics, and Optical Materials

#### **PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramic Properties I**

**Room: Portofino**

Session Chair: Danilo Manzani, University of São Paulo

**1:30 PM**

##### **(PACC7-001-2024) Metal Oxide-Based Anti-Thermal Quenching Phosphors**

Y. Mao<sup>\*1</sup>

1. Illinois Institute of Technology, Department of Chemistry, USA

**1:50 PM**

##### **(PACC7-002-2024) Microscaled control of optical properties in niobium and tantalum oxide and oxyfluoride glasses and glass-ceramics**

G. Y. Poirier<sup>\*1</sup>; F. C. Cassanjes<sup>1</sup>; M. Dussauze<sup>2</sup>; G. Batista<sup>1</sup>;  
T. Cardinal<sup>2</sup>; R. Rodrigues Faleiros<sup>1</sup>; A. Teofilo<sup>1</sup>; Y. Langer  
Campos de Lima<sup>1</sup>

1. UNIFAL-MG, Institute of Science and Technology, Brazil
2. CNRS/Université de Bordeaux, France

**2:10 PM**

##### **(PACC7-003-2024) Optoelectronic Characterization of RF Sputtered and Spin-Coated Indium Tin Oxide Thin Films**

M. Mays<sup>\*1</sup>; R. A. Gerhardt<sup>1</sup>

1. Georgia Institute of Technology, Materials Science and Engineering, USA

#### **PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramic Properties II**

Session Chair: Douglas Franco, Sao Paulo State University

**3:00 PM**

**Break**

**3:30 PM**

##### **(PACC7-004-2024) Cation Field-Strength Effects on the Borate-Group Intermixing in Borosilicate Glasses Probed by Solid-State NMR (Invited)**

P. Lv<sup>2</sup>; B. Stevansson<sup>1</sup>; Y. Yu<sup>1</sup>; T. Wang<sup>2</sup>; M. Eden<sup>\*1</sup>

1. Stockholm University, Dept. Materials and Environmental Chemistry, Sweden
2. Lanzhou University, China

**4:00 PM**

##### **(PACC7-005-2024) Shared oxygen atoms in glasses – from modifier to conditional glass former**

D. Möncke<sup>\*1</sup>

1. Alfred University, New York State College of Ceramics, USA

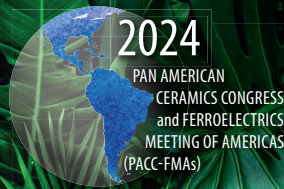
**4:20 PM**

##### **(PACC7-006-2024) Preparation, characterization, and structural studies of new sodium gallium tungstate fluoride-phosphate glasses**

T. A. Lodi<sup>3</sup>; G. Galleani<sup>2</sup>; A. S. de Camargo<sup>4</sup>; M. de Oliveira<sup>\*1</sup>;  
H. Eckert<sup>1</sup>

1. University of Sao Paulo, Sao Carlos Institute of Physics, Brazil
2. FunGlass – Centre for Functional and Surface Functionalized Glass, Department of Functional Materials, Slovakia
3. São Paulo State University, Institute of Chemistry, Brazil
4. Friedrich-Schiller University Jena, Germany





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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No photography/  
recording

## —TUESDAY—

### **PACC8 Processing and Manufacturing Technologies and Materials for a Sustainable Future**

#### **PACC 8-Processing and Manufacturing Technologies and Materials for Sustainable Future**

**Room: Ocean 1**

Session Chairs: Vania Salvini, UFSCar; Mangalaraja Ramalinga Viswanathan, Universidad Adolfo Ibáñez

**1:30 PM**

**(PACC8-008-2024) Microwave vs. conventional sintering of alumina-based castable containing ZnO: Energy efficiency and properties changes (Invited)**

O. H. Borges<sup>\*1</sup>; A. L. Cardoso<sup>1</sup>; M. H. Moreira<sup>2</sup>; R. Klein-Gunnewiek<sup>1</sup>; V. Pandolfelli<sup>1</sup>

1. Federal University of São Carlos, Materials Engineering Department (DEMa), Brazil
2. UFSCar, Materials Science and Engineering, Brazil

**2:00 PM**

**(PACC8-009-2024) Zero Sintering Ceramic Bricks: Self Sustainable Refractories for High Temperatures (Invited)**

C. Pagliosa<sup>\*1</sup>; V. Pandolfelli<sup>2</sup>

1. RHI MAGNESITA, R&D, Brazil
2. Federal University of Sao Carlos, Brazil

**2:30 PM**

**(PACC8-010-2024) Straightforward design strategy towards 3D near-net-shape stoichiometric SiC parts and its composite derivatives (Invited)**

M. Cheype<sup>3</sup>; V. Pateloup<sup>2</sup>; S. Bernard<sup>\*1</sup>

1. CNRS, IRCER, France
2. IRCER, Ceramic Processes, France
3. CNRS, France

**3:00 PM**

**Break**

**3:30 PM**

**(PACC8-011-2024) Processing and high temperature application of non-sintered insulating ceramic foams**  
V. R. Salvini<sup>\*1</sup>; V. F. Silva<sup>2</sup>; V. Pandolfelli<sup>2</sup>

1. SOLVE High Temperature Ceramics, Brazil
2. Federal University of Sao Carlos, Materials Engineering, Brazil

**3:50 PM**

**(PACC8-012-2024) Unveiling the Processing and Manufacturing of Nanoceramics: The Champion in the Olympiad of Energy-Environment-Nexus (Invited)**  
M. Viswanathan<sup>\*1</sup>

1. Universidad Adolfo Ibáñez, Faculty of Engineering and Sciences, Chile

**4:20 PM**

**(PACC8-013-2024) Red mud valorization in stoneware pastes *WITHDRAWN***

M. P. Seabra<sup>\*1</sup>; I. S. Vilarinho<sup>1</sup>; A. C. Dias<sup>2</sup>; J. Carneiro<sup>3</sup>; J. A. Labrincha<sup>1</sup>

1. University of Aveiro, Dep. of Materials and Ceramic Engineering, Portugal
2. University of Aveiro, Department of Environment and Planning, Portugal
3. Grestel-Produtos Cerâmicos S.A, Zona Industrial de Vagos, Portugal



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC9 Materials Approach to Art, Archaeology and Architecture in Americas II**

#### **PACC9-Materials Approach to Art, Arch, and Architecture in the Americas: Museum Collections: Policy, Preservation, and Research**

##### **Room: Venetian**

Session Chair: Christina Bisulca, Detroit Institute of Arts

##### **1:30 PM**

**(PACC9-019-2024) Rediscovering what has been discovered. Recontextualizing the ceramics from Cerro Juan Díaz, Panama**

R. P. Erlenbaugh Soriano de Chaviano\*<sup>1</sup>

1. Universidad de Panamá, Anthropology, Panama

##### **1:50 PM**

**(PACC9-020-2024) Building a Heritage Conservation Science Laboratory at The Mariners' Museum and Park**

M. K. McGath\*<sup>1</sup>

1. The Mariners' Museum and Park, Batten Conservation Complex, USA

##### **2:10 PM**

**(PACC9-021-2024) An economic and analytical study for the implementation of the strategy of conservation and rehabilitation of Islamic historical cities**

H. Youssef\*<sup>1</sup>

1. Cairo University, Egypt

##### **2:30 PM**

**(PACC9-022-2024) Reintroducing the Paul Vickers Gardner Glass Center**

A. Blake-Howland\*<sup>1</sup>; D. Möncke<sup>1</sup>; W. LaCourse<sup>1</sup>

1. Alfred University, Inamori School of Engineering, USA

##### **2:50 PM**

**Break**

##### **3:20 PM**

**(PACC9-023-2024) Pottery is not the same as ceramics**

N. Odegaard\*<sup>1</sup>

1. University of Arizona, Arizona State Museum, USA

##### **3:40 PM**

**(PACC9-024-2024) Fakes and Forgeries: Chancay Ceramic Figurines in Museum Collections**

E. Homberger\*<sup>1</sup>; C. Bisulca<sup>1</sup>

1. Detroit Institute of Arts, USA

##### **4:00 PM**

**(PACC9-025-2024) Nok terracotta exploration at mental health hospitals: A hybridization of ancient and modern materials for Nok re-imagined relief**

E. DoKyoung\*<sup>1</sup>; A. Umar<sup>1</sup>; C. Bakinde<sup>2</sup>

1. Abubakar Tafawa Balewa University, Bauchi, Nigeria, Department of Industrial Design, Nigeria
2. Ahmadu Bello University, Department of Archaeology and Heritage Studies, Nigeria

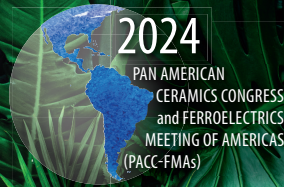
##### **4:20 PM**

**(PACC9-026-2024) Integrative Analysis for Authenticating Ancient Peruvian Textiles from the Detroit Institute of Arts**

J. Henkin\*<sup>1</sup>; C. Bisulca<sup>2</sup>; R. Armitage<sup>3</sup>

1. Field Museum of Natural History, USA
2. Detroit Institute of Arts, USA
3. Eastern Michigan University, Chemistry, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### PACC11 Additive Manufacturing of Ceramics and Composites

#### **PACC 11: Additive Manufacturing of Ceramics and Composites: AM processes for ceramics and composites**

**Room: Vitri**

Session Chair: Rui Novais, University of Aveiro (Portugal)

**1:30 PM**

#### **(PACC11-001-2024) Particle Deformation and Film Formation Mechanisms During Room Temperature Deposition of Ceramic Thick Films**

D. Kovar\*<sup>1</sup>

1. University of Texas at Austin, Mechanical Engineering, USA

**1:50 PM**

#### **(PACC11-002-2024) Hydrothermal-assisted Jet Fusion: A Selective Cold Sintering Approach**

X. Song\*<sup>1</sup>

1. University of Iowa, Industrial and Systems Engineering, USA

**2:10 PM**

#### **(PACC11-003-2024) DLP-based Additive Manufacturing of Complex 3D Structures with Surface Activated Silicone Carbide-polymer Composite (Invited)**

E. Joyee\*<sup>1</sup>

1. University of North Carolina at Charlotte, USA

**2:40 PM**

#### **(PACC11-004-2024) High-throughput, Ultra-fast Laser Sintering of Ceramics and Machine-learning-Based Prediction on Processing-Microstructure-Property Relationships (Invited)**

X. Geng<sup>1</sup>; J. Tang<sup>2</sup>; S. Sarkar<sup>1</sup>; Y. Shi<sup>3</sup>; J. Tong<sup>1</sup>; R. Bordia<sup>1</sup>; D. Li<sup>4</sup>; H. Xiao<sup>2</sup>; F. Peng\*<sup>1</sup>

1. Clemson University, Materials Science and Engineering, USA
2. Clemson University, Electrical and Computer Engineering, USA
3. Rensselaer Polytechnic Institute, USA
4. Advanced Manufacturing LLC, USA

**3:10 PM**

**Break**

**3:40 PM**

#### **(PACC11-005-2024) Additive manufacturing of bicontinuous piezocomposites for tailorable hydrostatic performance**

X. Song\*<sup>1</sup>

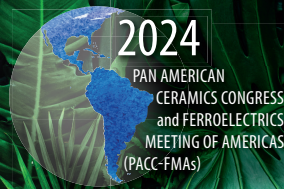
1. University of Iowa, Industrial and Systems Engineering, USA

**4:00 PM**

#### **(PACC11-006-2024) Towards Direct Additive Manufacturing of Bulk Ceramics Using Selective Laser Flash Sintering (Invited)**

D. Kovar\*<sup>1</sup>

1. University of Texas at Austin, Mechanical Engineering, USA



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —TUESDAY—

### **PACC12 Ceramics and Materials Education in the Americas**

#### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-Innovative Approaches**

##### **Room: Bellagio**

Session Chair: Darryl Butt, University of Utah

**1:30 PM**

##### **(PACC12-009-2024) A Comprehensive Overview of Ceramic Education Initiatives at Missouri University of Science and Technology (Invited)**

K. Wilkerson\*<sup>1</sup>

1. Missouri University of Science & Technology, Materials Science & Engineering, USA

**1:50 PM**

##### **(PACC12-010-2024) Short Courses/Modules Focused on Fundamentals (Invited)**

R. Bordia\*<sup>1</sup>

1. Clemson University, Materials Science and Engineering, USA

**2:10 PM**

##### **(PACC12-012-2024) Innovative Methodologies for the Teaching of Advanced Ceramic Materials in the Boyacá (Invited)**

L. Mujica<sup>1</sup>; W. R. Vargas<sup>2</sup>; A. M. Ríos Rojas<sup>1</sup>; A. Naranjo<sup>2</sup>;  
H. Hernández<sup>2</sup>; T. Cetina Pérez<sup>2</sup>; A. Pinzón\*<sup>1</sup>

1. Universidad Pedagógica Y Tecnológica de Colombia, Ingeniería, Colombia
2. Universidad Pedagógica y Tecnológica de Colombia, Boyacá, Colombia

**2:30 PM**

**Break**

### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-Humanitarian**

Session Chair: Darryl Butt, University of Utah;

Sylvia Johnson, NASA-Ames Research Center, (ret.)

**3:20 PM**

##### **(PACC12-013-2024) Engineering Superheroes: A Strategy to Attract and Retain Students Using Experiential Learning and Classroom Edutainment(Invited)**

R. Castro\*<sup>1</sup>

1. Lehigh University, Materials Science and Engineering, USA

**3:40 PM**

##### **(PACC12-014-2024) Building Compassion and Human Bridges Through Research Collaborations (Invited)**

O. A. Graeve\*<sup>1</sup>

1. University of California, San Diego, Mechanical and Aerospace Engineering, USA

### **PACC 12: Special Symposium: Ceramics and Materials Education in the Americas-Historical Perspectives**

Session Chair: Darryl Butt, University of Utah; Sylvia

Johnson, NASA- Ames Research Center (ret.)

**4:00 PM**

##### **(PACC12-015-2024) Humanitarian Engineering: A socio-technical approach to engineering work (Invited)**

O. J. Restrepo Baena\*<sup>1</sup>

1. Universidad Nacional de Colombia, Materials and Minerals, Colombia

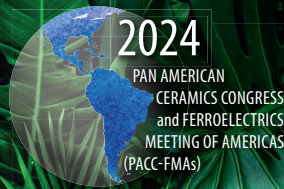
**4:20 PM**

##### **(PACC12-016-2024) Overview of the ceramic industry in Colombia (Invited)**

O. J. Restrepo Baena\*<sup>1</sup>

1. Universidad Nacional de Colombia, Materials and Minerals, Colombia





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### Ferroelectrics Meeting of Americas

#### **FMA-Growth of crystals, processing of materials and characterization, structure-property relationships, and thin films - Dielectric, piezoelectric, pyroelectric properties**

##### **Room: Star Bay 3**

Session Chair: Steven Tidrow, Alfred University

##### **8:30 AM**

#### **(FMA-024-2024) Advances in the Development of Ordered Nanotubes of Ceramic Semiconductors for Solar Energy Conversion (Invited) (Invited)**

O. K. Varghese<sup>\*2</sup>; D. Rana<sup>2</sup>; B. Kandel<sup>2</sup>; M. Paulose<sup>1</sup>; D. Waligo<sup>2</sup>

1. University of Houston, Department of Physics, USA
2. University of Houston, Department of Physics and Texas Center for Superconductivity, USA

##### **9:00 AM**

#### **(FMA-025-2024) Structural, compositional, morphological, optical and magnetic response of the CaLaTiFeO<sub>6</sub> double perovskite**

J. D. Avellaneda Martínez<sup>\*1</sup>; J. S. Ibañez Sotelo<sup>1</sup>; X. A. Velásquez<sup>1</sup>; C. Parra<sup>2</sup>; D. Landínez<sup>1</sup>; J. Roa-Rojas<sup>1</sup>

1. Universidad Nacional de Colombia, Physics, Colombia
2. Universidad Pedagógica y Tecnológica de Colombia, Physics, Colombia

##### **9:20 AM**

#### **(FMA-026-2024) Morphotropic phase boundary in NBT-BKT-BT system: correlative local and macroscopic analysis**

A. Benitez Castro<sup>5</sup>; A. Castro Hidalgo<sup>6</sup>; M. Pinto Salazar<sup>2</sup>; P. Groszewicz<sup>3</sup>; J. Losada Losada<sup>7</sup>; G. Buntkowsky<sup>2</sup>; J. Muñoz Saldaña<sup>\*1</sup>; K. G. Webber<sup>4</sup>

1. Centro de Investigación y de Estudios Avanzados del IPN, Mexico
2. TU Darmstadt, Physikalische Chemie der kondensierten Materie (AK Buntkowsky) Eduard-Zintl-Institut für Anorganische und Physikalische Chemie., Germany
3. TU Delft, Storage of Electrochemical Energy, Netherlands
4. Friedrich-Alexander-Universität Erlangen-Nürnberg, Materials Science and Engineering, Germany
5. FAU-Erlangen/CINVESTAV-Qro, Germany
6. Universidad de la Amazonia, Colectivo de Investigación en Educación Matemática, Colombia
7. Universidad de Manizales, Grupo de Investigación y Desarrollo en Informática y Telecomunicaciones, Colombia

##### **9:40 AM**

#### **(FMA-027-2024) Ceramics processing and dielectric characterization of Strontium Tantalate for 5G applications**

M. Julian<sup>\*1</sup>; R. Benzerga<sup>1</sup>; L. Le Gendre<sup>1</sup>; A. Sharaiha<sup>1</sup>; F. Cheviré<sup>2</sup>; C. Le Paven<sup>1</sup>

1. University of Rennes, Institute of Electronics and Telecommunications of Rennes (IETR), France
2. University of Rennes, Institute of Chemical Sciences of Rennes (ISCR), France

##### **10:00 AM**

#### **Break**

##### **10:30 AM**

#### **(FMA-028-2024) Magnetolectric nanorobots for targeted electroporation and on-demand anti-cancer drug delivery (Invited)**

S. Betal<sup>\*1</sup>; N. Murali<sup>1</sup>; A. S. Bhalla<sup>2</sup>; R. Guo<sup>2</sup>

1. Indian Institute of Technology Delhi, Electrical Engineering, India
2. University of Texas, San Antonio, USA

##### **11:00 AM**

#### **(FMA-029-2024) High-Performance Dielectrics for Passive Integration and Energy Storage (Invited)**

H. Wang<sup>\*1</sup>

1. Southern University of Science and Technology, Graduate School, China

##### **11:30 AM**

#### **(FMA-030-2024) Ultrahigh piezoelectricity and permittivity by tricritical multiphase coexisting point (Invited) X. Ren<sup>\*1</sup>**

1. National Institute for Materials Science, Japan



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### Career Talks

#### Room: Bellagio

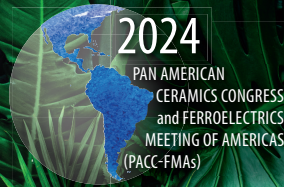
Session Chair: Sylvia Johnson, NASA-Ames Research Center (ret.)

Sylvia Johnson	8:30 a.m.
Rasha Shaheen	8:40 a.m.
Darryl Butt	8:50 a.m.
Kelley Wilkerson	9:00 a.m.
Marc Hugar	9:10 a.m.
Yuanbing Mao	9:20 a.m.
Pelegia-Irene Gouma	9:30 a.m.
Lisa McDonald	9:40 a.m.
Olivia Graeve	9:50 a.m.

#### **Break** **10:00 a.m.**

Ricardo Castro	10:30 a.m.
Scott McCormack	10:40 a.m.
Dana Goski	10:50 a.m.
Ivar Reimanis	11:00 a.m.
Pandiyarajan Thangaraj	11:10 a.m.
Mangalaraja Ramalinga Viswanathan	11:20 a.m.
Christina Bisulca	11:30 a.m.
Steven Tidrow	11:40 a.m.
Arulraj Arunchalan	11:50 a.m.
Xuan Song	12 p.m.





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### PACC2 Advanced Ceramics and Composites

#### PACC2-Advanced Ceramics and Composites

##### Room: Mirage

Session Chair: Mangalaraja Ramalinga Viswanathan,  
Universidad Adolfo Ibáñez

##### 8:30 AM

##### (PACC2-008-2024) Electrospinning of Ceramic Nanowires for Photocatalytic Applications

T. S. Gilmore<sup>\*1</sup>; P. Gouma<sup>1</sup>

1. Ohio State University, Materials Science and Engineering,  
USA

##### 8:50 AM

##### (PACC2-009-2024) Local effective piezo-electric response for the polycrystalline BCZT bulk ceramic versus thin film (Invited)

G. M. Herrera-Perez<sup>\*1</sup>; O. Solis<sup>1</sup>; A. Reyes-Rojas<sup>1</sup>;  
L. Fuentes-Cobas<sup>1</sup>

1. CONACYT, CIMAV, Mexico

##### 9:20 AM

##### (PACC2-010-2024) Optimizing CuBi<sub>2</sub>O<sub>4</sub> Thin Film- Based Solar Cells with GO Hole Transport Layer: A Simulation Study for Enhanced Efficiency

M. Panachikkool<sup>\*1</sup>; M. Viswanathan<sup>2</sup>; T. Pandiyarajan<sup>1</sup>

1. Indian Institute Of Information Technology, Design &  
Manufacturing, Kurnool, Sciences, India
2. Universidad Adolfo Ibáñez, Faculty of Engineering and  
Sciences, Chile

##### 9:40 AM

##### (PACC2-011-2024) Ceramic additive manufacturing for permittivity tuning in dielectric resonator antennas

T. Lavie<sup>\*1</sup>; L. Le Gendre<sup>1</sup>; M. Julian<sup>1</sup>; R. Benzerga<sup>1</sup>;  
A. Sharaiha<sup>1</sup>; F. Cheviré<sup>2</sup>; C. Le Paven<sup>1</sup>

1. University of Rennes, Institute of Electronics and  
Telecommunications of Rennes (IETR), CNRS, France
2. University of Rennes, Institute of Chemical Sciences of  
Rennes (ISCR), CNRS, France

##### 10:00 AM

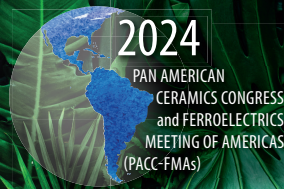
##### Break

##### 10:30 AM

##### (PACC2-012-2024) Enhanced magnetic and microwave properties of La-Co co-substituted barium hexaferrite

S. Mahadevan<sup>\*1</sup>; P. Sharma<sup>2</sup>; M. Viswanathan<sup>1</sup>; J. F.  
Vivanco<sup>1</sup>

1. Universidad Adolfo Ibáñez, Faculty of Engineering  
and Sciences, Chile
2. IILM University, Department of Science, India



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### **PACC3 Densification and Microstructural Evolution in Ceramics During Sintering**

#### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Microstructural evolution and properties**

**Room: Millenium**

Session Chair: Hector Camacho Montes, Universidad  
Autonoma de Ciudad Juarez

**8:30 AM**

#### **(PACC3-017-2024) Randomly packed green-compacts and their sintering kinetics (Invited)**

E. Hernandez\*<sup>1</sup>; M. C. Guziewski<sup>1</sup>

1. DEVCOM Army Research Laboratory, USA

**9:00 AM**

#### **(PACC3-018-2024) Exsolution and Coarsening in Metal Oxide Systems (Invited)**

I. Reimanis\*<sup>1</sup>

1. Colorado School of Mines, USA

**9:30 AM**

#### **(PACC3-019-2024) Study of the Physical properties of the $K_{0.5}Na_{0.5}NbO_3$ Doped With Li, La and Ti (Invited)**

J. M. Yáñez-Limón\*<sup>1</sup>; C. Montero-Tavera<sup>2</sup>;

M. Durruthy-Rodríguez<sup>3</sup>; K. M. Moya-Canul<sup>1</sup>;

J. M. Estrella-Nuñez<sup>1</sup>; D. Olguín<sup>1</sup>

1. Center for Research and Advanced Studies of IPN, Cinvestav-Campus-Qro., Materials Science and Engineering, Mexico
2. Universidad de Guanajuato, Ingeniería Mecánica Campus DICIS, Mexico
3. National Evangelical University, Dominican Republic

**10:00 AM**

**Break**

### **PACC3-Densification and Microstructural Evolution in Ceramics during Sintering: Microstructural evolution and properties**

Session Chair: Rajendra Bordia, Clemson University

**10:30 AM**

#### **(PACC3-020-2024) The effect of sintering on the conductivity and composition of proton-conducting ceramics (Invited)**

S. Ricote\*<sup>1</sup>

1. Colorado School of Mines, Mechanical Engineering, USA

**11:00 AM**

#### **(PACC3-021-2024) Cordierite ceramics fabricated by reaction sintering of the sillimanite minerals (sillimanite, andalusite and kyanite) and talc**

H. Balmori\*<sup>1</sup>; L. Tellez-Jurado<sup>1</sup>

1. National Polytechnic Institute, Metallurgical Eng., Mexico

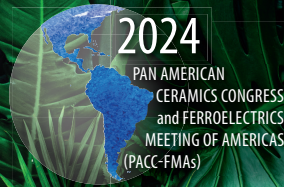
**11:20 AM**

#### **(PACC3-022-2024) Comparisons of constitutive laws for stress-assisted densification powder compact**

H. Camacho Montes\*<sup>1</sup>; A. L. Álvarez González<sup>1</sup>; I. M. Espinoza  
Ochoa<sup>1</sup>; Y. Espinosa Almeyda<sup>1</sup>; R. Bordia<sup>3</sup>

1. Universidad Autonoma de Ciudad Juarez, Physics and Mathematics, Mexico
2. Clemson University, Materials Science and Engineering, USA





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### PACC4 Bioceramics and Biocomposites

#### **PACC 4: Bioceramics and Biocomposites 1**

##### **Room: Venetian**

Session Chair: Pelagia-Irene Gouma, The Ohio State University

##### **8:30 AM**

##### **(PACC4-001-2024) Biological Adaptations and Blueprints for Extreme Environments (Invited)**

D. Kisailus\*<sup>1</sup>

1. University of California at Irvine, Materials Science and Engineering, USA

##### **9:00 AM**

##### **(PACC4-002-2024) Antibacterial properties of silicate bioactive glasses containing boron and strontium for bone regeneration**

M. Arango-Ospina\*<sup>1</sup>; A. R. Boccaccini<sup>1</sup>

1. University of Erlangen-Nuremberg, Institute of Biomaterials, Germany

##### **9:30 AM**

##### **(PACC4-003-2024) Bioactive glass containing chitosan coatings on metallic filters by electrophoretic deposition (EPD)**

Z. Hadzhieva\*<sup>1</sup>; A. Boccaccini<sup>1</sup>

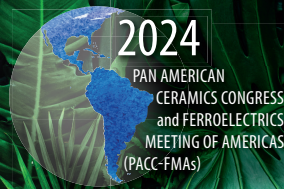
1. Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

##### **10:00 AM**

##### **(PACC4-004-2024) Hydroxyapatite/Collagen Bone-Like Nanocomposite: Introduction and New Features (Invited)**

M. Kikuchi\*<sup>1</sup>; T. Hasegawa<sup>3</sup>; N. Amizuka<sup>3</sup>; T. Sato<sup>2</sup>; K. Tsuru<sup>2</sup>

1. National Institute for Materials Science (NIMS), Bioceramics Group, Japan
2. Fukuoka Dental College, Japan
3. Hokkaido University, Japan



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### PACC6 Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability

#### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

##### **Room: Revolution**

Session Chairs: Alain Gasser, University of Orléans;  
Artem Trofimov, Orton Ceramic Foundation

**8:30 AM**

##### **(PACC6-026-2024) Microcracked refractory microstructures investigations by EBSD and Synchrotron Facilities (Invited)**

M. Huger\*<sup>1</sup>

1. IRCER - UMR CNRS 7315, France

**9:00 AM**

##### **(PACC6-027-2024) Novel Brick Technology for Carbon Reduction Footprint in Steel Shop Linings (Invited)**

C. Pagliosa\*<sup>1</sup>; L. Rocha Martins<sup>1</sup>; M. Borges<sup>2</sup>; V. Pandolfelli<sup>3</sup>

1. RHI MAGNESITA, Head of Linings Brazil, Brazil
2. RHI MAGNESITA, Head of Marketing & Solutions North America, USA
3. Federal University of Sao Carlos, Brazil

**9:20 AM**

##### **(PACC6-028-2024) Filling the gap between refractories selection and field performance by tracking the application parameters**

M. Braulio\*<sup>1</sup>; T. Iwanaga<sup>2</sup>; C. Linhares<sup>3</sup>; A. Guedes<sup>4</sup>;  
N. Brandao<sup>5</sup>; V. Pandolfelli<sup>6</sup>

1. 4Cast - Technical Assistance on Refractories, Brazil
2. Hydro Alunorte, Brazil
3. Alcoa, Brazil
4. Albras, Brazil
5. Klabin, Brazil
6. Federal University of Sao Carlos, Brazil

**9:40 AM**

##### **(PACC6-029-2024) Measurement system for energy consumption and costs of high temperature furnaces for different refractory linings**

V. R. Salvini\*<sup>1</sup>; V. Pandolfelli<sup>2</sup>; J. A. Rodrigues<sup>3</sup>; O. H. Borges<sup>4</sup>

1. SOLVE High Temperature Ceramics, Brazil
2. Federal University of Sao Carlos, Brazil
3. Federal University of Sao Carlos, Materials Engineering, Brazil

**10:00 AM**

**Break**

### **PACC6-Advancements in Refractory Ceramics: Innovation, Performance, and Sustainability**

Session Chairs: Reinaldo Noronha, BAUTEK; Jesse Carreau, Allied Mineral Technical Services

**10:30 AM**

##### **(PACC6-030-2024) Thermomechanical modelling of industrial vessels that contain refractory masonry linings (Invited)**

A. Gasser\*<sup>1</sup>

1. University of Orléans, France

**11:00 AM**

##### **(PACC6-031-2024) Hot Disk Method – Fast, Easy, and Non-Destructive Thermal Conductivity Characterization (Invited)**

A. A. Trofimov\*<sup>1</sup>

1. Orton Ceramic Foundation, Instruments Department, USA

**11:20 AM**

##### **(PACC6-032-2024) Degradation Mechanisms of Refractories and an Introduction to Inspection and Monitoring of Furnace Refractory Linings**

A. Sadri\*<sup>1</sup>

1. Hatch, Asset Performance Management (APM) Group, Canada

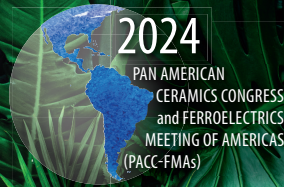
**11:40 AM**

##### **(PACC6-033-2024) New Approaches To Design Refractory Castable Linings For Alumina Calciner Via Finite Element Simulations**

M. F. Dos Santos\*<sup>1</sup>; C. I. Pereira<sup>1</sup>; R. A. Angélico<sup>2</sup>;  
M. H. Moreira<sup>3</sup>; M. Braulio<sup>4</sup>; T. Iwanaga<sup>5</sup>; V. Pandolfelli<sup>6</sup>

1. Federal University of Sao Carlos, Department of Materials Engineering, Brazil
2. University of Sao Paulo, Aeronautical Engineering, Brazil
3. UFSCar, Materials Science and Engineering, Brazil
4. 4Cast - Technical Assistance on Refractories, Brazil
5. Hydro Alunorte, Brazil
6. Federal University of Sao Carlos, Brazil





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### PACC7 Science and Technology of Glasses, Glass Ceramics, and Optical Materials

#### **PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramics Technologies I**

**Room: Portofino**

Session Chair: Doris Möncke, Alfred University

**8:30 AM**

##### **(PACC7-007-2024) Tailoring Photonic Properties: Erbium-Doped Nanoglass on Plasmonics Gratings (Invited)**

J. Aarón Chacaliza Ricaldi<sup>1</sup>; I. Carvalho Pinto<sup>3</sup>; V. Rivera<sup>2</sup>;  
Y. Messaddeq<sup>2</sup>; E. Marega<sup>\*1</sup>

1. University of Sao Paulo, Physics and Material Science, Brazil
2. Université Laval, Optic-Photonic Pavillion, Canada
3. Université Laval, Center for Optics Photonics and lasers, Canada

**9:00 AM**

##### **(PACC7-008-2024) Magneto-optical borogermanate glasses and fibers containing Tb<sup>3+</sup>**

D. F. Franco<sup>\*1</sup>; M. Nalin<sup>2</sup>

1. Sao Paulo State University, Brazil
2. Institute of Chemistry and Chemical Technology, Mongolian Academy of Sciences, Inorganic Chemistry, Brazil

**9:20 AM**

##### **(PACC7-009-2024) Laser-Based Spatially-Tailorable Fabrication of Optically-Functional Three- Dimensional Chalcogenide Glass Structures (Invited)**

M. Kang<sup>\*1</sup>

1. Alfred University, Ceramic Engineering Program, USA

**9:50 AM**

**Break**

### **PACC7-Science and Technology of Glass, Glass-Ceramics, and Optical Materials: Glass and Glass Ceramics Technologies II**

Session Chair: Marcos de Oliveira, University of Sao Paulo

**10:30 AM**

##### **(PACC7-010-2024) Adapting technological programs to develop heritage GlassCeramics, and Optical Materials preservation operations to raise community cultural awareness**

Y. Elreweny<sup>\*1</sup>

1. Ain Shams University, Egypt

**10:50 AM**

##### **(PACC7-011\_2024) Structural, optical and luminescent investigation of new Eu<sup>3+</sup> doped niobum fluorophosphate glasses**

L. Olivetti Esteva de Sila<sup>\*1</sup>; de Oliveira, Marcos<sup>2</sup>; Petit,  
Laeticia<sup>3</sup>; Manzani, Danilo<sup>1</sup>

1. São Carlos Institute of Chemistry, University of São Paulo, São Carlos, SP, Brazil.
2. Sao Carlos Institute of Physics, University of Sao Paulo, Sao Carlos, Sao Paulo, Brazil.
3. Tampere University, Tampere, Finland.



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —WEDNESDAY—

### PACC11 Additive Manufacturing of Ceramics and Composites

#### **PACC 11 Additive Manufacturing of Ceramics and Composites: Novel applications of ceramic AM**

##### **Room: Vitri**

Session Chairs: Fei Peng, Clemson University; Erina Baynojjir Joyee, University of North Carolina at Charlotte

##### **8:30 AM**

#### **(PACC11-008-2024) Additive Manufacturing of Geopolymers for Sustainable Catalytic Applications**

R.V.Eleuterio<sup>1</sup>; L.Simão<sup>2</sup>; R. Catapan<sup>1</sup>; D. Hotza\*<sup>1</sup>

1. Federal University of Santa Catarina, Brazil
2. UNAERP, Brazil

##### **8:50 AM**

#### **(PACC11-009-2024) Study of the structural and mechanical properties of Polyamide 12 exposed to high doses of gamma radiation.**

W. R. Vargas\*<sup>1</sup>; L. Mujica<sup>2</sup>; H. Olaya<sup>1</sup>; A. Joya<sup>1</sup>; C. Ruge<sup>2</sup>

1. UPTC, Science, Colombia
2. UPTC, Engineering, Colombia

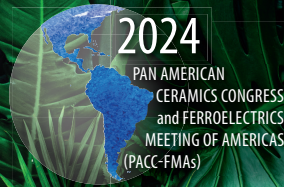
##### **9:10 AM**

#### **(PACC11-010-2024) Highly porous 3D printed ceramic lattices for environmental applications (Invited)**

R. M. Novais\*<sup>1</sup>; N. P. Gonçalves<sup>1</sup>; M. Almeida<sup>1</sup>; T. Gameiro<sup>1</sup>;  
J. A. Labrincha<sup>1</sup>

1. University of Aveiro, Department of Materials and  
Ceramic Engineering/CICECO-Aveiro Institute of  
Materials, Portugal





# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —THURSDAY—

### Ferroelectrics Meeting of Americas

**FMA-Simulation, modeling, and design of novel ferroics and meta-electronic materials - Theory, first principle calculations, phase transitions, and critical phenomena**

**Room: Star Bay 3**

Session Chair: Chonglin Chen, University of Texas San Antonio

**8:30 AM**

**(FMA-031-2024) General Design Principles for Simple and Simply Mixed Perovskites, Including Their Modifications (Invited)**

S. Tidrow\*<sup>1</sup>

1. Alfred University, USA

**9:00 AM**

**(FMA-032-2024) Prediction of multi-solvent droplets spreading using CFD for the fabrication of functional materials**

C. Acosta\*<sup>1</sup>; A. S. Bhalla<sup>1</sup>; R. Guo<sup>1</sup>

1. University of Texas, San Antonio, USA

**9:20 AM**

**(FMA-033-2024) Demonstration of VQE simulation: Van Der Waals Heterostructures as a Case Study**

M. Trippy\*<sup>1</sup>; A. S. Bhalla<sup>2</sup>; R. Guo<sup>2</sup>

1. University of Texas at San Antonio, Electrical Engineering, USA
2. University of Texas, San Antonio, USA

**9:40 AM**

**(FMA-034-2024) CaLaSnFeO<sub>6</sub> perovskite: An structural, magnetical, optical and theoretical correlation of physical properties**

X. A. Velásquez\*<sup>1</sup>; J. Rincon<sup>1</sup>; S. Pozada<sup>1</sup>; S. Nino<sup>1</sup>; T. Quispe<sup>1</sup>; A. Moreno<sup>1</sup>; A. Morales<sup>1</sup>; D. Landínez<sup>1</sup>; J. Roa-Rojas<sup>1</sup>

1. Universidad Nacional de Colombia, Physics, Colombia

**10:00 AM**

**Break**

**10:30 AM**

**(FMA-035-2024) Machine Learning Approaches for Predicting Properties of Ferroelectric Perovskite Materials (Invited)**

L. F. Cótica\*<sup>1</sup>; H. N. Machado<sup>1</sup>; V. E. Vizcarra Ruiz<sup>1</sup>; G. S. Dias<sup>1</sup>; I. A. Santos<sup>1</sup>; V. F. Freitas<sup>2</sup>; R. Guo<sup>3</sup>; A. S. Bhalla<sup>3</sup>

1. State University of Maringa, Department of Physics, Brazil
2. Universidade Estadual do Centro-Oeste - Unicentro, Physics, Brazil
3. University of Texas, San Antonio, USA

**11:00 AM**

**(FMA-036-2024) Halide Perovskites: NSMM versus Goldschmidt's Tolerance Factor Formalism**

S. Tidrow\*<sup>1</sup>

1. Alfred University, New York State College of Ceramics, USA

**11:20 AM**

**(FMA-037-2024) Foster scientific knowledge among high school students by introducing the concept of piezoelectricity (Invited)**

V. Gaviria Castañeda\*<sup>1</sup>; F. Londoño<sup>1</sup>; S. Tidrow<sup>2</sup>

1. Universidad de Antioquia, Antioquia, Colombia
2. Alfred University, USA

**11:50 AM**

**(FMA-038-2024) Optical-acoustic Combiner based Dual-scale Photoacoustic Microscopy (Invited)**

X. Hong\*<sup>1</sup>

1. South China University of Technology, Department of Mechanical & Automotive Engineering, China



# PAN AMERICAN CERAMICS CONGRESS and FERROELECTRICS MEETING OF AMERICAS (PACC-FMAs)



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## —THURSDAY—

### PACC4 Bioceramics and Biocomposites

#### **PACC 4: Bioceramics and Biocomposites 2**

##### **Room: Venetian**

Session Chairs: David Kisailus, University of California at Irvine; Masanori Kikuchi, National Institute for Materials Science (NIMS)

##### **8:30 AM**

##### **(PACC4-005-2024) Mesocrystalline Ordering and Phase Transformation of Iron Oxide Biominerals in the Ultrahard Teeth of *Cryptochiton stelleri* (Invited)**

D. Kisailus\*<sup>1</sup>

1. University of California at Irvine, Materials Science and Engineering, USA

##### **9:00 AM**

##### **(PACC4-006-2024) Biocompatibility and Bioactivity of Zn/Sr-Substituted HA/CNF/PCL nanocomposite**

S. Durairaj\*<sup>1</sup>; A. Arunachalam<sup>2</sup>; J. F. Vivanco<sup>1</sup>; M. Viswanathan<sup>1</sup>

1. Universidad Adolfo Ibáñez, Faculty of Engineering and Sciences, Chile
2. Universidad Tecnológica Metropolitana, Chile

##### **9:30 AM**

##### **(PACC4-007-2024) Hybrid wearables for health monitoring through skin-gas detection (Invited)**

P. Gouma\*<sup>1</sup>

1. The Ohio State University, MSE, USA





# ANTI HARASSMENT POLICY

## Statement of Policy:

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The American Ceramic Society (ACerS) is committed to ensuring that all ACerS activities are free from discrimination, harassment, and/or retaliation of any form. ACerS seeks to foster an environment promoting the free expression and exchange of scientific ideas. ACerS is committed to ensuring equality of treatment and opportunity and freedom from harassment for all members and participants regardless of race, gender, nationality, religious beliefs, gender identity, color, age, marital status, sexual orientation, disabilities, ancestry, personal appearance, or any other basis not relevant to scientific merit. Violators of this policy will be subject to discipline by the Society.

## Definition of Harassment:

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Harassment includes, but is not limited to, offensive verbal comments related to gender, gender identity and expression, sexual orientation, disability, physical appearance, body size, race, national origin, religion, age, marital status, military status, or any other status protected by law; deliberate intimidation; stalking; following; harassing photography or recording; sustained disruption of talks or other events; and inappropriate physical contact. Attendees asked to stop any harassing behavior are expected to comply immediately.

## Definition of Sexual Harassment:

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Sexual harassment does not refer to occasional compliments or other generally acceptable social behavior. Sexual harassment refers to verbal, physical, and visual conduct of a sexual nature that is unwelcome and offensive to the recipient. By way of example, sexual harassment may include such conduct as sexual flirtations, advances, or propositions; verbal comments or physical actions of a sexual nature; sexually degrading words used to describe an individual; an unwelcome display of sexually suggestive objects or pictures; sexually explicit jokes; and offensive, unwanted physical contact such as patting, pinching, grabbing, groping, or constant brushing against another's body. Attendees asked to stop any sexually harassing behavior are expected to comply immediately.

## Scope of Policy:

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This policy applies to all attendees of ACerS meetings, events, and activities, including members, non-members, partnering organizations, volunteers, students, guests, staff, contractors, exhibitors, and all other participants related to ACerS events and activities.

## Reporting an Incident:

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If you are being harassed, notice that someone else is being harassed, or have any other concerns, please contact an ACerS staff member immediately. ACerS staff can be identified by the official staff badge, their name and title. All complaints will be treated seriously and will be investigated promptly.

Names(s) and Contact Information Onsite to Report an Incident:

1. ACerS Executive Director, **Mark Mecklenborg**, ph 614-794-5829 / email: [ExecDirector@ceramics.org](mailto:ExecDirector@ceramics.org)
2. ACerS President, **Rajendra Bordia** / email: [ACerSPresident@ceramics.org](mailto:ACerSPresident@ceramics.org)

## Disciplinary Action:

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All reports of harassment will be directed immediately to the ACerS leadership team who may consult with and engage other ACerS staff, leaders and legal counsel as appropriate. Conference security and/or local law enforcement may be involved, as appropriate based on the specific circumstances. In response to a report of harassment, the ACerS leadership team or ACerS staff will take appropriate action. Such actions range from a verbal warning to ejection from the event without a refund. Repeat offenders may be subject to further disciplinary action, such as being banned from participating in future ACerS conferences or events and/or permanently expelled from ACerS membership.

*The full policy can be viewed at: <https://ceramics.org/wp-content/uploads/2018/12/Anti-Harassment-Policy.pdf>*





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11 Na 22.98976928 Sodium	12 Mg 24.305 Magnesium											13 Al 26.9815386 Aluminum	14 Si 28.0855 Silicon	15 P 30.973762 Phosphorus	16 S 32.065 Sulfur	17 Cl 35.453 Chlorine	18 Ar 39.948 Argon
19 K 39.0983 Potassium	20 Ca 40.078 Calcium	21 Sc 44.955912 Scandium	22 Ti 47.867 Titanium	23 V 50.9415 Vanadium	24 Cr 51.9961 Chromium	25 Mn 54.938045 Manganese	26 Fe 55.845 Iron	27 Co 58.933195 Cobalt	28 Ni 58.6934 Nickel	29 Cu 63.546 Copper	30 Zn 65.38 Zinc	31 Ga 69.723 Gallium	32 Ge 72.64 Germanium	33 As 74.9216 Arsenic	34 Se 78.96 Selenium	35 Br 79.904 Bromine	36 Kr 83.798 Krypton
37 Rb 85.4678 Rubidium	38 Sr 87.62 Strontium	39 Y 88.90585 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.90638 Niobium	42 Mo 95.96 Molybdenum	43 Tc (98.0) Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.9065 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.8682 Silver	48 Cd 112.411 Cadmium	49 In 114.818 Indium	50 Sn 118.71 Tin	51 Sb 121.76 Antimony	52 Te 127.6 Tellurium	53 I 126.90447 Iodine	54 Xe 131.293 Xenon
55 Cs 132.9054 Cesium	56 Ba 137.327 Barium	57 La 138.90547 Lanthanum	58 Ce 140.12 Cerium	59 Pr 140.90766 Praseodymium	60 Nd 144.242 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.92535 Terbium	66 Dy 162.5 Dysprosium	67 Ho 164.93032 Holmium	68 Er 167.259 Erbium	69 Tm 168.93423 Thulium	70 Yb 173.054 Ytterbium	71 Lu 174.967 Lutetium	
87 Fr (223) Francium	88 Ra (226) Radium	89 Ac (227) Actinium	90 Th 232.0375 Thorium	91 Pa 231.03688 Protactinium	92 U 238.02891 Uranium	93 Np (237) Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (288) Mendelevium	102 No (289) Nobelium	103 Lr (262) Lawrencium	

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