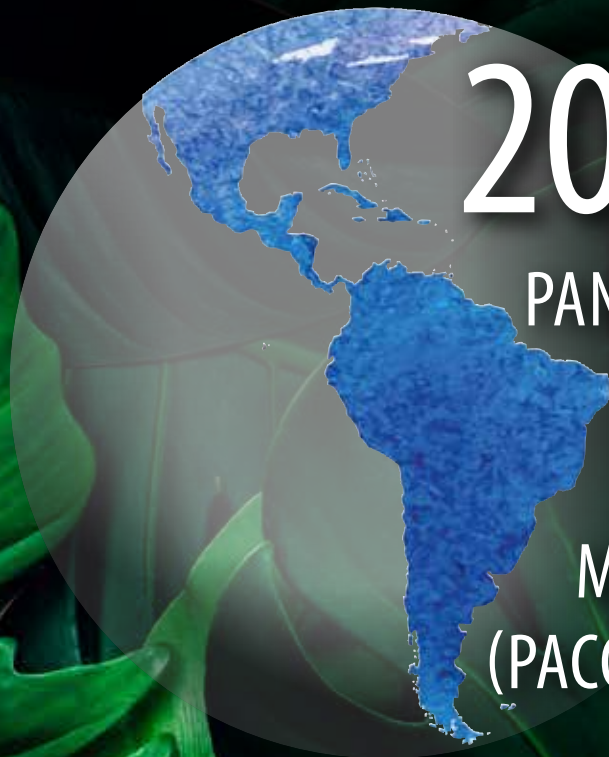


# CALL FOR PAPERS

Abstracts due November 6, 2023



# 2024

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

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

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## Abstracts due November 6, 2023

### PAN AMERICAN CERAMICS CONGRESS MEETING CHAIRS



**Raj Bordia**  
Clemson University



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

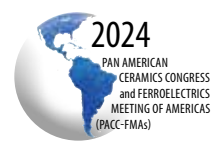


**Sanjay Mathur**  
University of Cologne, Germany

### 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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## Related Organizational Activities:

Ivair A. Santos, UEM, Brazil  
Marcelo Stachiotti, Argentina  
Juan Munoz Saldana, Mexico Londono  
Badillo, Colombia  
Gian Guzman, Costa Rica  
L.F. Cotica, UEM, Brazil  
Jose S. Guerra, UFU, Brazil  
Steven Tidrow, USA  
Chonglin Chen, USA  
Ram Katiyar, Puerto Rico  
Eleicer Ching Prado, Panama Valdirleir  
Freitas, Brazil  
G. Srinivasan, USA  
Aiping Chen, USA  
Ary Hoyas, Colombia (smart and energy  
recovery novel materials)  
Ducinei Garcia, UFSC, Brazil, (science  
education and technology)  
Ximena Velasquez Moya, Colombia,  
(student leadership)

## FERROELECTRICS MEETING OF AMERICAS

Topics will cover all aspects of ferroelectrics, ferroics, multiferroics, and related multifunctional materials and devices, including but not be limited to

- Theory, first principles calculations, phase transitions, and critical phenomena
- Growth of crystals, processing of materials and characterization, structure–property relationships, and thin films
- Domains and boundaries, surfaces and interfaces, imperfections, controlling and exploiting topological defects
- Dielectric, piezoelectric, pyroelectric properties
- Ferroelectric polymers, composites, 3D printing of ferroics and multiferroics structures
- Probing the nanoscale ferroelectric behavior and size effects
- Order–disorder phenomena, ferroelectric relaxors
- Ferroics, bioferroics, multiferroics, biomultiferroics, cross-coupled and secondary ferroics
- Raman, IR, sub-millimeter, THz, microwave spectroscopy
- Ferroelectric–semiconductor integration
- Novelty of perovskites—single-phase ferroics, mixed oxides for energy harvesting, and superconductor oxides
- Simulation, modeling, and design of novel ferroics and metaelectronic materials
- Ferroelectrics by design—beyond serendipity; 1D and 2D structures
- Novel applications and device concepts using various ferroics and multiferroics for applications in biocomponents and multifunctional device concepts

## FMAs organizers

**Amar Bhalla**, University of Texas at San Antonio, USA, amar.bhalla@utsa.edu  
**Avadh Saxena**, Los Alamos National Laboratory, USA, avadh@lanl.gov  
**Jose A. Eiras**, Federal University of São Carlos, Brazil, eiras@df.ufscar.br  
**Ruyan Guo**, University of Texas at San Antonio, USA, Ruyan.guo@utsa.edu

## ABSTRACT SUBMISSION INSTRUCTIONS

Visit [ceramics.org/PACCFMAs](http://ceramics.org/PACCFMAs)  
Select “Submit Abstract”  
to be directed to the Abstract  
Central website.

Abstract title and text character limit  
(including spaces) is  
1,500 characters.

If you have questions, please  
contact Karen McCurdy at  
[kccurdy@ceramics.org](mailto:kccurdy@ceramics.org) or  
+1 614-794-5866



## HILTON PANAMA

Address: Balboa Avenida & Calle Aquilino de la Guardia, Panamá, Panama  
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\$139 USD/single rate occupancy\*

\$149 USD/student double occupancy\*, These rooms are reserved for students with a valid student ID



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## PACC1—Functional Ceramics for Energy and Environment

This symposium invites abstracts in the general field of ceramics for energy and environment with emphasis on ceramics involved in energy generation, conversion and storage, and sustainable materials and technologies in a wide range of applications. Topics include but are not limited to energy conversion (solar cells, fuel cells, nanogenerators, hydrogen production), storage (supercapacitors, batteries), environment, transportation, aerospace, building, and infrastructure. The symposium brings together the ceramics community to share experimental (processing, characterization, and properties) and simulation approaches aiming at fundamental and applied research for emergent functional ceramics for sustainable energy and the environment.

### Proposed session topics

- Ceramics for energy generation, conversion, and transmission
- Ceramics for photoelectrocatalytic and energy storage applications
- Ceramics for environmental conservation and protection
- Ceramics in fuel cells technology
- Simulation and modeling of ceramics for energy and environment
- Sustainability in ceramics
- Functional ceramics for aerospace, building, transportation, and infrastructure
- Circular economy and climate change associated with ceramics and composites

### Symposium organizers

**Henry A. Colorado**, Universidad de Antioquia, Colombia,  
henry.colorado@udea.edu.co

**Mangalaraja Ramalinga Viswanathan**, Universidad Adolfo Ibáñez, Chile, mangal@uai.cl

**Dileep Singh**, Argonne National Laboratory, USA, dsingh@anl.gov

**Carlos E. Castano**, Virginia Commonwealth University, USA,  
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**Federico Smeacetto** Politecnico di Torino, Italy,  
federico.smeacetto@polito.it

**Arulraj Arunachalam**, Universidad Tecnológica Metropolitana, Santiago, Chile, arul@utem.cl

**Afonso Rangel Garcez de Azevedo**, Universidade Estadual do Norte Fluminense, Brazil, afonso@uenf.br

## PACC2—Advanced Ceramics and Composites

Advanced ceramics and composites are strategic materials in a wide range of industrial applications in the field of automotive, aerospace, optical, and structural. This symposium invites abstracts in the field of advanced or modern or technical ceramics (oxides, nonoxides [carbides, nitrides, graphene, MXenes], and ceramic composites) for a wide range of applications including, but not limited to, structural (mechanical), optical, thermal, and defense. Both experimental and simulation approaches are welcome, along with fundamental and applied research for the emergent and sustainable technologies. This section brings together ceramic engineers, scientists, and technologists to discuss and share advances and challenges in ceramic synthesis, processing (fabrication and sintering), characterization, and properties.

### Proposed session topics

- Novel synthesis of advanced ceramics
- Advanced ceramic manufacturing technologies
- Sintering technologies of advanced ceramics and composites
- Ceramic coatings and thin films
- Additive manufacturing
- Processing–microstructure–properties–performance relationships
- Industrial applications of advanced ceramics and composites
- Failure analysis of advanced ceramics

### Symposium organizers

**Mangalaraja Ramalinga Viswanathan**, Universidad Adolfo Ibáñez, Santiago, Chile, mangal@uai.cl

**Carlos Maurício Fontes Vieira**, Universidade Estadual do Norte Fluminense, Brazil, vieira@uenf.br

**Nicolas Maximiliano Rendtorff**, Centro de Tecnología de Recursos Minerales y Cerámica, Argentina, rendtorff@cetmic.unlp.edu.ar

**Pandiyarajan Thangaraj**, Indian Institute of Information Technology, Design and Manufacturing, Andhra Pradesh, India, pandiyarajan@iiitk.ac.in

**Bai Cui**, University of Nebraska-Lincoln, Lincoln, Nebraska, USA, bcui3@unl.edu

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

Sintering is a critical processing step in making both traditional and advanced ceramics with the desired microstructure and properties. This symposium will cover all aspects of the sintering of ceramics. It will address the latest developments in consolidation and related microstructural evolution during conventional and novel sintering processes with a focus on fundamental understanding, technological issues, and industrial applications. The overall theme is tailoring the microstructure, including porosity, and therefore properties of

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ceramics by well-established and emerging sintering processes and the increasing ability of sintering approaches to process complex multimeral and multifunctional ceramics and systems. Considering the growing awareness of environmental impact, there is increased focus on developing sustainable sintering processes that minimize energy consumption and waste generation, including emissions, while still producing high-quality ceramics.

## Proposed session topics

- Modeling and simulation of sintering at multiple scales
- Sintering of multimeral and multilayer systems
- Microstructural evolution and properties control in sintering processes
- Novel sintering processes (e.g., field assisted, flash, laser, ultrafast high temperature, low temperature, cold)
- Sintering phenomena in additive manufacturing
- Stress-assisted sintering (e.g., hot pressing, hot isostatic pressing, sinter forging)
- Sintering of nanostructured materials
- Sustainable sintering practices

## Symposium organizers

**Rajendra K. Bordia**, Clemson University, USA, [rbordia@clemson.edu](mailto:rbordia@clemson.edu)

**Héctor Camacho Montes**, Universidad Autónoma de Ciudad Juárez, Mexico, [hcamacho@uacj.mx](mailto:hcamacho@uacj.mx)

**Dachamir Hotza**, Federal University of Santa Catarina (UFSC), Brazil, [d.hotza@ufsc.br](mailto:d.hotza@ufsc.br)

## **PACC4—Bioceramics and Biocomposites**

The last few decades have witnessed significant progress in the use of ceramics for biomedical applications, with anticipated benefits in clinical diagnosis and treatment. In addition to conventional ceramic fabrication technologies, biomimetic processes are also being adopted to develop bioinspired materials and inorganic–organic hybrids. The advent of nanotechnology and additive manufacturing further increased the spectrum of applications of bioceramics and biocomposites.

This symposium will provide a platform to stimulate discussion among active researchers from academia/national labs, medical device manufacturers, entrepreneurs, and clinicians who are involved in the development and use of bioceramics.

## Proposed session topics

- Porous bioceramics
- Additive manufacturing of bioceramics
- Biomineralization and tissue–material interactions
- Bioactive and resorbable ceramics
- Bioinspired, biosynthetic, and biomimetic ceramics
- Ceramics for drug and gene delivery

- Ceramics with bacteriostatic and bactericidal properties
- In-vitro and in-vivo biocompatibility of bioceramics

## Symposium organizers

**Roger Narayan**, North Carolina State University, USA, [rjnaraya@ncsu.edu](mailto:rjnaraya@ncsu.edu)

**Aldo Boccaccini**, University of Erlangen-Nuremberg Institute of Biomaterials, Germany, [aldo.boccaccini@ww.uni-erlangen.de](mailto:aldo.boccaccini@ww.uni-erlangen.de)

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

This symposium is about cements, alkali-activated cements, and supplementary cementitious materials; alkali-activated, aluminosilicate-based geopolymers (which can convert to ceramics upon heating); phosphoric acid-activated geopolymers; and valorization of mine tailings to make cements and geopolymers. It also includes structural clay materials, green and alternative cements, construction materials, and potential other applications of such materials.

## Proposed session topics

- Cements and alkali activated cements
- Supplementary cementitious materials
- Waste materials to make cements and construction materials
- Geopolymers made from metakaolin clays
- Phosphates and other inorganic analogues
- Geopolymer-derived ceramic processing routes
- Valorization of mine tailings to make cements and geopolymers
- Green and alternative cements
- Waste encapsulation
- Sustainable materials
- Smart cements and energy harvesting
- Applications of the above

## Symposium organizers

**Waltraud M. Kriven**, University of Illinois at Urbana-Champaign, USA, [kriven@illinois.edu](mailto:kriven@illinois.edu)

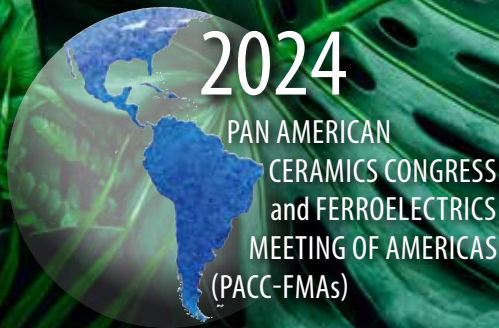
**Henry A. Colorado L.**, Universidad de Antioquia, Colombia, [henry.colorado@udea.edu.co](mailto:henry.colorado@udea.edu.co)

**Oscar Jaime Restrepo Baena**, National University of Colombia, Medellín, Colombia, [ojrestre@unal.edu.co](mailto:ojrestre@unal.edu.co)

**Ary Alain Hoyos Montilla**, National University of Colombia, [aahoyosm@unal.edu.co](mailto:aahoyosm@unal.edu.co)

**Flávio de Andrade Silva D.Sc.**, Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Brazil, [fsilva@puc-rio.br](mailto:fsilva@puc-rio.br)

**Ruy A. Sá Ribeiro**, INPA-National Institute for Amazonian Research, Brazil, [ruy@desari.com.br](mailto:ruy@desari.com.br)



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

This symposium aims to bring together researchers from academia, industry, and government to share their knowledge, discuss current challenges and opportunities, and explore future directions in the refractory ceramics field. Refractory ceramics make numerous high-temperature processes viable, from traditional kilns and complex reactors to metals and minerals production to space launch deflector systems. This symposium will provide an international forum for sharing the latest research findings and advances in the field of refractory ceramics, including but not limited to in-process works, recent findings, complete experiments, and reviews.

### Proposed session topics

- The hydrogen economy and anticipated refractory challenges and potential solutions
- Reducing carbon footprints for refractory production and application
- Modeling and simulations related to the development, production, or performance evaluation of refractories
- Novel synthesis and processing techniques
- Microstructure and properties of advanced refractory ceramics
- Thermal and mechanical properties, testing of refractory ceramics
- Refractory coatings and composite refractory systems
- Insulating refractory systems

### Symposium organizers

**Dana Goski**, Allied Mineral Products, USA, [dana.goski@alliedmin.com](mailto:dana.goski@alliedmin.com)

**Vânia Regina Salvini**, SOLVE High Temperature Ceramics, Brazil, [vr.salvini@solvehtc.com](mailto:vr.salvini@solvehtc.com)

**Victor Carlos Pandolfelli**, Federal University of São Carlos, Brazil, [vicpando@ufscar.br](mailto:vicpando@ufscar.br)

## PACC7—Science and Technology of Glass, Glass-Ceramics, and Optical Materials

This symposium provides a broad forum for the exchange and discussion of current issues in the science and technology of glasses, glass-ceramics, and optical materials in general. The symposium will cover recent theoretical and experimental advances in fundamental and applied glass sciences, novel glass and glass-ceramic synthesis, processing and characterization, structure–processing–properties correlations, and optical device development. The symposium also aims at attracting a broader audience for discussions on emerging technological applications of materials spanning over the disordered–ordered structural spectrum. Topics of interest include, but are not limited to, advanced structural characterizations of glasses, glass transition and relaxation, nucleation and controlled crystal growth in glass-ceramics, atomic-scale simulations, structure–property correlations, new functionalities, and novel

applications of amorphous materials in general. Of special interest are materials that can be employed in integrated optical systems and devices, specifically addressing how bulk material properties can be translated, through modern manufacturing routes to planar and fiber forms. Contributions from the academic and/or industrial segments that address recent advances and new applications are highly welcome.

### Proposed session topics

- Glass structure (from nanoscopic to macroscopic properties)
- Simulations of glass structure and dynamics.
- Novel glass formulations and manufacturing methodologies
- Spectroscopic characterization of optically active glasses, glass-ceramics, composites, and related materials
- Novel optical materials for new and multiple functionalities
- Materials for functional photonic devices
- Hybrids and nonoxide glasses
- Glass-ceramics (synthesis, processing, and applications)
- Material manufacturing methods for new optical applications
- Bioglasses and bioactive optical materials

### Symposium organizers

**Danilo Manzani**, University of São Paulo, Brazil, [dmanzani@usp.br](mailto:dmanzani@usp.br)

**Marcos de Oliveira Junior**, University of São Paulo, Brazil, [mjunior@ifsc.usp.br](mailto:mjunior@ifsc.usp.br)

**Douglas Faza Franco**, São Paulo State University, Brazil, [douglas.franco@unesp.br](mailto:douglas.franco@unesp.br)

**Doris Möncke**, Alfred University, USA, [moncke@alfred.edu](mailto:moncke@alfred.edu)

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

The processing of advanced materials, ceramics, and glass are undergoing major changes to ensure a sustainable future for our industries and society. Changes are being made from cradle to grave with sustainable sourcing of feedstocks and raw materials and recycling or repurposing of end-of-life materials. These changes include the replacement of “strategic” elements with earth-abundant metals. Environmental burdens are being reduced by novel processing and manufacturing technologies that produce less waste, avoid harsh or toxic chemicals or solvents, and produce net-shape or near-net-shape materials at lowered temperature, and lower greenhouse gas emissions. Furthermore, the products of the ceramic and glass industries have a myriad of applications in monitoring and protecting the environment and green energy sources. These applications include fuel cells, batteries, sensors, photovoltaics, and materials to capture carbon dioxide or convert it into useful materials. The aim of this symposium is to discuss sustainability advances in processing and manufacturing technologies for a wide variety of ceramics and advanced materials.

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

## Proposed session topics

- Sustainable sourcing of feedstocks and raw materials for the ceramic and glass industries
- Green manufacturing processes with lower environmental burdens (e.g., aqueous synthesis and processing, colloidal processing, single-source precursors, and advanced powder synthesis and processing)
- Reduction of greenhouse gas generation via advanced sintering technologies and lower temperature synthesis and manufacturing processes
- Materials for capture and/or conversion of carbon dioxide
- Reduction of manufacturing waste via novel forming and shaping technologies, additive manufacturing, and novel forming and shaping technologies
- Ceramic and glass materials for environmental protection, remediation, and monitoring and for alternative fuel production
- Materials recycling for ceramic and glass manufacturing
- Replacements for rare or strategic elements in ceramic-containing devices (e.g., fuel cells, batteries, sensors, photovoltaics)

## Symposium organizers

**Allen Apblett**, Oklahoma State University, USA,  
allen.apblett@okstate.edu

**Surojit Gupta**, University of North Dakota, USA, gsurojit1@gmail.com

**Vania Salvini**, Federal University of São Carlos, Brazil,  
vr.salvini@gmail.com

**Troy Ansell**, Naval Postgraduate School, USA,  
troy.ansell@nps.edu

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

This symposium will cover a wide range of materials analyses applied on art, archaeology, and architecture. Topics of interest are noninvasive and microdestructive techniques, reconstruction of technology, dating techniques, artifact sourcing, the deterioration and conservation of cultural heritage materials, monitoring deterioration, and general technical studies. This symposium is open to conservation scientists, archaeologists, conservators, and other professionals working with cultural heritage materials. Topics do not need to be focused on ceramics and submissions related to all materials (e.g., paintings, textiles, objects) are welcome. Special consideration will be given to submissions related to the cultural heritage of the Americas.

## Symposium organizers

**Christina Bisulca**, Detroit Institute of Arts, cbisulca@dia.org

**Henry Colorado**, Universidad de Antioquia,  
henry.colorado@udea.edu.co

**Fumie Iizuka**, University of Missouri, iizukafumie@gmail.com

**Molly McGath**, Mariner's Museum and Park,  
mmcath@marinersmuseum.org

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

Research into 2D materials has grown globally due to their exciting properties and ever-expanding chemistries. There are diverse classes of 2D materials that have ceramic or ceramic-like properties, whether in their chemistry or bonding, allowing them to achieve goals that no other class of materials can. Due to their unique properties, 2D materials have the possibility of revolutionizing many aspects of life, from energy storage to biomedicine to environmental remediation.

This symposium will be an international forum for discussion of synthesis, properties, and applications of 2D materials. All aspects of fundamental experimental and theoretical research related to 2D materials, including materials discovery and synthesis, characterization of their electrical, optical, thermal, mechanical properties, and their applications as functional devices, will be covered in this symposium.

## Proposed session topics

- Synthesis of novel 2D material chemistries (experimental and theoretical)
- Optical/electronic properties
- Mechanical/thermal properties and applications
- Chemical/catalytic properties and applications
- Integration of 2D materials into electronics
- Novel heterostructures and composites
- Electrochemical properties and applications
- Biological applications

## Symposium organizers

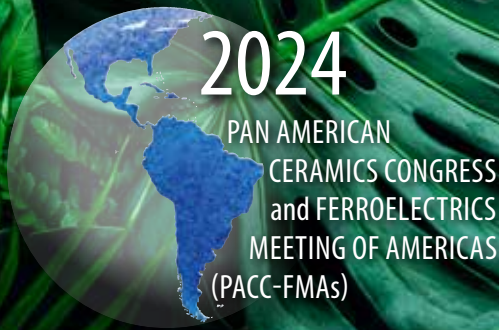
**Christopher E. Shuck**, Rutgers University, USA,  
Christopher.E.Shuck@Rutgers.edu

**Andreas Rosenkranz**, University of Chile, Chile,  
arosenkranz@ing.uchile.cl

**Arun Thirumurugan**, University of Atacama, Chile,  
arun.thirumurugan@uda.cl

## **PACC11—Additive Manufacturing of Ceramics and Composites**

The scope of this symposium is focused on the additive manufacturing (AM) of ceramics and ceramic composites. AM enables the production of highly complex ceramic components that are challenging to fabricate using traditional manufacturing methods. However, current AM processes for ceramics and ceramic composites are primarily based on technologies developed for other materials, such as polymers and metals, and do not fully exploit the unique processing characteristics of ceramics. This fact limits the properties, scalability, and sustainability of ceramic parts produced using these AM methods. To address these challenges and enable wider adoption of ceramic AM technologies on an industrial scale, research is needed to develop next-generation AM processes that can fabricate ceramics and ceramic composites with enhanced properties.



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larger volumes, and reduced energy consumption and carbon emissions. Achieving this result requires exploring new materials, novel fabrication methods, and advanced control strategies that leverage recent advances in the broader fields of materials and manufacturing science.

### Proposed session topics

- Feedstock material preparation and synthesis, including ceramic powders, binders, sintering agents
- AM methods, such as extrusion-based methods, vat photopolymerization, powder bed-based methods
- New AM processes for ceramics and composites, such as field-assisted AM, hybridized processes
- In-situ process monitoring and control for improved properties
- Computational and data-driven approaches for ceramic AM
- Post-processing methods of additively manufactured ceramics and composites
- Novel applications of ceramic AM in aerospace, automotive, biomedical, and energy sectors
- Sustainability of ceramic AM processes: reducing energy consumption and carbon emissions

### Symposium organizers

**Xuan Song**, University of Iowa, USA, xuan-song@uiowa.edu

**Yiquan Wu**, Alfred University, USA, wuy@alfred.edu

**Henry A. Colorado**, Universidad de Antioquia, Colombia, henry.colorado@udea.edu.co

**Dachamir Hotza**, Federal University of Santa Catarina, Brazil, d.hotza@ufsc.br

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

Education in materials science and engineering, and especially in ceramics, is critical to the continuation of the field and ensuring that students are properly prepared. It is important to understand how approaches to education differ throughout the region. Students and educators need to understand approaches and differences so they can move throughout the region, potentially attending or working at a university in another area.

This symposium will both invite and accept abstracts from speakers to present overviews of the materials education process in their country or region. These overviews can include university, college, technical or community college, and K–12 education. The speakers will identify strengths and any challenges in their regions.

Abstracts are particularly solicited for presentations focused on innovations and challenges in undergraduate and graduate education, including interdisciplinary programs; international programs; and innovations in mentoring, career preparedness, and experiential learning.

Additionally, presentations are encouraged that might enlighten students on international opportunities and solutions to barriers to international graduate and post-graduate experiences.

Sharing approaches and solutions will benefit educators, students, and employers. Speakers will be given a set of general guidelines for their talks. There will also be a panel discussion at the end so the audience and speakers can discuss selected topics.

A second part of this symposium will consist of career talks from selected PACC-FMAs attendees. These talks will not fall under the abstract selection process. Expressions of interest may be sent to any of the symposium organizers listed below.

### Proposed session topics

- University/college materials education
- Historical perspectives
- Challenges and changes in graduate education
- Interdisciplinary programs and collaborations, including funding sources
- International opportunities for students and visiting scholars
- Technician training
- High school/middle school education in materials
- Needs for specific training/topics in the region
- Industry participation in education
- Museums as a Materials Education Resource
- Education for diversity and inclusion, humanitarian principles.
- Training ceramic scientists and engineers in materials informatics

### Symposium organizers

**Sylvia M. Johnson**, Johnson Consulting, NASA (retired), USA, sylviamjohnson@hotmail.com

**Darryl P. Butt**, University of Utah, USA, darryl.butt@utah.edu

**Henry Colorado**, Universidad de Antioquia, Colombia, henry.colorado@udea.edu.co



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

## SPECIAL SESSION - TEN-MINUTE CAREER TALKS

The purpose of this session is to highlight the careers of individuals in the field of ceramics and materials in the Americas. Speakers will be chosen from those attending the meeting and will be selected to represent a diverse variety of career choices and career stages. As such, we expect to cover the careers of students through young professionals, mid-career participants, and a selected few late and end-of-career people.

A major goal is to provide insight and inspiration to others, especially students and young professionals. As such, we are particularly interested in how people have moved around from educational opportunities to jobs to other activities, collaborations, and lessons learned.

There will be opportunities to question the speakers through a panel discussion and informal means. The following points are offered to provide guidance on what could be included and to help structure talks.

- Where did you grow up?
- Who inspired you in high school?
- Where did you go to college?
- What were the challenges?
- What did you study? Why?
- What was your first job in materials/technology?
- Did you change jobs?
- Life and work balance: challenges and solutions
- Looking back, what would you do differently?
- What are your plans for the future?
- Advice to those entering the field
- Thank you to anyone?

If you are interested in giving one of these talks, please let Greg Geiger ([ggeiger@ceramics.org](mailto:ggeiger@ceramics.org)) know as soon as possible. The final program will be decided in advance of the meeting.





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