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ABSTRACTS DUE DEC. 19, 2022

2023 GLASS & OPTICAL MATERIALS DIVISION ANNUAL MEETING (GOMD 2023)

June 4–9, 2023 | Hotel Monteleone | New Orleans, LA USA

The American Ceramic Society
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2023 GLASS & OPTICAL MATERIALS DIVISION ANNUAL MEETING (GOMD 2023)

JUNE 4–9, 2023

Join ACerS Glass & Optical Materials Division for GOMD 2023, June 4–9, 2023 in New Orleans, La., for a program featuring four symposia: Fundamentals of the Glassy State; Glass and Interactions with Its Environment; Optical and Electronic Materials and Devices; and Outreach, Glass Technology, Manufactory, Recycling and Cross-Cutting Topics. Technical sessions consisting of both oral and poster presentations led by technical leaders from industry, national laboratories, and academia will provide an open forum for glass scientists and engineers from around the world to present and exchange findings on recent advances in various aspects related to glass science and technology. And a full-day course on glass chemical durability will take place on June 4 prior to the technical programs. This meeting is a great opportunity for the technical community to meet in person as we are back to normal.

Students are encouraged to enter their presentations in the annual student poster competition for professional recognition and cash awards. Students attending GOMD 2023 also are invited to attend a career roundtable discussion with scientists from industry, national laboratories, and academia about career opportunities and other topics in a casual environment. GOMD 2023 will provide a unique opportunity for students to learn, interact, and win!

The conference takes place at Hotel Monteleone, which is located in the French Quarter of New Orleans. The hotel is located near a variety of specialty shops selling art and antiquities from around the world and restaurants serving authentic New Orleans Cajun cuisine. Tourist attractions are located just steps from the hotel, including Jackson Square, Bourbon Street, the French Market, and the Riverwalk. New Orleans itself is steeped in European traditions and Caribbean influences. The Big Easy offers visitors sweet sounds and savory aromas fueled by three hundred years of history.

The GOMD Executive Committee, program chairs, and volunteer organizers sincerely hope you will join us in New Orleans for GOMD 2023 to learn about the latest breakthroughs in glass science, to find new collaborative opportunities, and to exchange ideas in the international glass community.

We look forward to meeting you in person in New Orleans!

ABSTRACT SUBMISSION INSTRUCTIONS

Visit **www.ceramics.org/gomd2023** to review the session topics and select the "Submit Abstract" hyperlink to be directed to the **https://glass2023.abstractcentral.com**. If you have questions, please contact Marilyn Stoltz at mstoltz@ceramics.org or 614-794-5868.

GOMD 2023 PROGRAM CHAIRS:

Walter Kob
University of Montpellier
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Qiang Fu
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HOTEL INFORMATION

Hotel Monteleone
Ph: (504) 523-3341
214 Royal Street | New Orleans, LA 70130

Based on availability:
Single/Double: $179.00 + tax

Cut-Off Date: May 10, 2023

Booking Link: https://www.phgsecure.com/IBE/bookingRedirect.ashx?propertyCode=MSYHM&group=ARS02F&arrivalDate=06-04-2023&departureDate=06-08-2023

2022–2023 GOMD OFFICERS

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PRELIMINARY SCHEDULE

Sunday, June 4, 2023

Conference registration	4:00 p.m. – 6:00 p.m.
Welcome reception	5:00 p.m. – 6:00 p.m.

Monday, June 5, 2023

Conference registration	7:30 a.m. – 5:30 p.m.
Stookey Lecture of Discovery	8:00 a.m. – 9:00 a.m.
Concurrent technical sessions	9:20 a.m. – 6:00 p.m.
Lunch on own	Noon – 1:30 p.m.
Poster setup - students hang posters	2:30 p.m. – 5:30 p.m.
Poster session and reception; student poster competition	6:30 p.m. – 8:30 p.m.

Tuesday, June 6, 2023

Conference registration	7:30 a.m. – 5:30 p.m.
George W. Morey Award lecture	8:00 a.m. – 9:00 a.m.
Concurrent technical sessions	9:20 a.m. – 6:00 p.m.
Norbert J. Kreidl Award for Young Scholars	Noon – 1:00 p.m.
Lunch on own	Noon – 1:30 p.m.
GOMD general business meeting	5:45 p.m. – 6:45 p.m.
Conference banquet	7:00 p.m. – 9:00 p.m.

Wednesday, June 7, 2023

Conference registration	7:30 a.m. – 5:00 p.m.
Varshneya Frontiers of Glass Science lecture	8:00 a.m. – 9:00 a.m.
Concurrent technical sessions	9:20 a.m. – 6:00 p.m.
Lunch on own	Noon – 1:30 p.m.

Thursday, June 8, 2023

Conference registration	8:00 a.m. – Noon
Varshneya Frontiers of Glass Technology lecture	8:00 a.m. – 9:00 a.m.
Concurrent technical sessions	9:20 a.m. – Noon

SYMPOSIUM 1: FUNDAMENTALS OF THE GLASSY STATE

This symposium will provide a discussion forum on fundamental principles of glass science. Contributions covering experimental and theoretical developments in the field of glass science are welcome. Topics of interest include novel developments in the following sessions.

Session 1: Glass Formation and Structural Relaxation

Organizers: **Sabyasachi Senh**, University of California Davis, USA
sbsen@ucdavis.edu
Collin Wilkinson, Alfred University, USA
wilkinsonc@alfred.edu

This session will address all fundamental aspects of glass formation, including experimental, modeling, and theoretical developments in our understanding of the glass transition and relaxation. All glass-forming systems including oxide, nonoxide, metallic, and organic glasses will be covered. Topics of interest include but are not limited to various relaxation phenomena and dynamical processes in the glass transition range including fragility and structural and dynamical heterogeneity.

Session 2: Glass Crystallization and Glass-Ceramics

Organizers: **Ina Mitra**, Schott, Germany; Ina.mitra@schott.com
Ashutosh Goel, Rutgers University, USA
ag1179@soe.rutgers.edu

This session is devoted to advancing fundamental understanding of crystallization in glasses and its application in glass-ceramics and related materials. The symposium will cover both experimental, analytical/characterization, as well as numerical/modeling aspects of nucleation and growth in glass-forming materials. Topics to be covered include, but are not limited to, the following.

- Theoretical, simulation, and experimental studies of nucleation and crystal growth in glasses and liquids
- The role of glass composition, structure, and nucleating agents on crystallization
- Amorphous phase separation and its role in influencing crystallization
- Novel methods and characterization techniques (ex-situ, in-situ) to understand crystallization
- Modeling and simulation techniques to elucidate crystallization glass-forming ability of compositions
- Crystallization phenomena in organic and metallic materials
- Novel processing techniques for glass-ceramics
- Microstructure/property relationships in glass-ceramics
- Predicting glass-ceramic generation
- Applications of glass-ceramics

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Session 3: Structural Characterizations of Glasses and Melts

Organizers: **Randy Youngman**, Corning Inc., USA
YoungmanRE@Corning.com
Daniel Neuville, CNRS-IPGP-UP, France
neuville@ipgp.fr

This session will present recent advances on structural aspects of glasses and melts at the short- and medium-range order, including heterogeneities. Any contributions that cover basic glass characterization and correlation between the glass and melt structure and glass properties are welcome. Further, contributions should include—but are not limited to—various experimental techniques, such as magnetic resonance spectroscopy, X-ray, neutron, and light scattering, X-ray absorption and emission spectroscopy, vibrational spectroscopy, and scanning probe and electron microscopies.

Session 4: Atomistic Simulation and Predictive Modeling of Glasses

Organizers: **Alfonso Pedone**, University of Modena and Reggio Emilia, Italy; alfonso.pedone@unimore.it
Hiroyuki Inoue, University of Tokyo, Japan
inoue@iis.u-tokyo.ac.jp

Modeling and simulation play an important role in materials research, particularly for glasses, amorphous, and nanostructured materials due to their complex nature. This session will focus on computer simulations and modeling approaches to gain insight into the structures, properties, and behavior of glasses and glass-forming liquids. Of particular interest are recent developments and applications of first principles, classical, and mesoscale methods and their integration with the aim of expanding the space and timescales explored by conventional modeling techniques. Also, welcome are numerical studies that help the interpretation of experimental data and structural validation using methods such as X-ray and neutron diffraction, solid-state NMR, and other spectroscopic techniques. Finally, integrated computational material design of glass compositions using physics-based modeling and simulation methods will be covered as well.

Session 5: Data-based Modeling and Machine Learning for Glass Science

Organizers: **Mathieu Bauchy**, University of California Los Angeles, USA; bauchy@ucla.edu
N.M. Anoop Krishan, Indian Institute of Technology, India; krishnan@iitd.ac.in
Daniel Cassar, Brazilian Center for Research in Energy and Materials, Brazil; daniel.cassar@ilum.cnpem.br

Data-driven methods and artificial intelligence-based models have attracted much attention in recent years to solve complex problems in the field of glass science. Specifically, machine learning has been successfully applied to resolve long-standing problems, such as predicting composition–property relationships, developing optimized glass compositions, accelerating glass modeling, and even understanding the fundamental aspects of glass transition. This session focuses on the recent advances achieved using machine learning and artificial intelligence in the areas of glass science, technology, and modeling. The topics of interest include, but are not restricted to, the application of machine learning and artificial intelligence to develop and interpret composition–property relationships, design optimized glass compositions, 3D print and additively manufacture glasses, advance computational modeling by developing machine-learned interatomic potentials and accelerating glass simulations, conduct image processing, predict the structure of glasses, identify key structural patterns/descriptors that govern glass properties, and understand the fundamentals of glassy state.

Session 6: Mechanical Properties of Glasses

Organizers: **Kevin Strong Jr.**, Sandia National Laboratories, USA
ktstron@sandia.gov
Tanguy Rouxel, University Rennes, France
Tanguy.Rouxel@univ-rennes1.fr

This session will discuss the mechanical properties of disordered materials across multiple scales while bridging the fields of metallic and nonmetallic glasses, as well as mechano-optical and mechano-electrical couplings. We will consider the structural origin of elasticity, plasticity, and fracture with the objective of designing glasses with superior toughness, defect tolerance, and stiffness, combining mechanical and various functional properties. Particular attention will be given to the identification of general, material-independent constitutive laws that may be used as guidelines to improve the mechanical properties; the combination of experimental approaches and computational modeling of the stress-response of glasses and early stages of damage infliction; and the interplay between size and time effects, stress-corrosion, and the chemical aspect of fracture.

Contributions are especially invited on

- Dynamic fracture and brittleness, or crack initiation, including the application of in-situ techniques.
- Slow crack growth and stress corrosion cracking; the underlying chemistry and transport phenomena in high stress fields.
- Multiscale investigation of elasticity, plasticity, and hardness in relation to bulk topology through combining mechanical analyses with structural analyses.
- Strategies for toughening inorganic oxide and metallic glasses.
- Mechano-electrical and mechano-optical couplings.

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Session 7: Non-Oxide Glasses, MOF-Glasses, and Glass-Ceramics

Organizers: **Francisco Munoz**, CSIC-ICV, Spain; fmunoz@icv.csic.es
Pierre Lucas, The University of Arizona, USA pierre@arizona.edu
Morten Smedskjaer, University of Aalborg, Denmark; mos@bio.aau.dk

This session aims to present and discuss the recent developments in both fundamental and applied research in chalcogenide, halide, metallic, molecular glasses, metal-organic framework glasses, nitrided systems, and all other types of non-oxide glasses and glass-ceramics. Topics of interest include structural characterization, structure–property relationship, novel synthesis and processing methods, compositional trends, and advances in physical properties such as optical, thermal, electrical, and mechanical behaviors.

Session 8: Glass Under Extreme Conditions

Organizers: **Madoka Ono**, Hokkaido University, Japan mono@es.hokudai.ac.jp
Anita Zeidler, University of Bath, UK az207@bath.ac.uk

This session will cover the recent progress in understanding structure and properties of glass under extreme conditions, such as high pressure, high stress, high temperature, high radiation, and highly reactive conditions. Many manufacturing processes, such as fiber drawing, laser writing, and irradiation aging, are concerned with these conditions. New knowledge of glass structure and properties under extreme conditions can help design glass for these applications, as well as in utilizing such conditions to synthesize glass with superior properties. Experimental studies, novel in situ analysis methods, and computational approaches are within the scope of this session.

SYMPOSIUM 2: GLASS AND INTERACTIONS WITH ITS ENVIRONMENT – FUNDAMENTALS AND APPLICATIONS

This symposium is dedicated to fundamentals and applications of how glass is used in contact with specific environments, e.g., with the human body, how glass surface and interfaces evolve or can be modified in different environments, and how glass can be used to contain other materials and prevent their release in the environment.

Session 1: Glasses, Glass-Ceramics, and Glass-based Biomaterials

Organizers: **Delia Brauer**, University of Jena, Germany delia.brauer@uni-jena.de
Saurabh Kapoor, Sterlite Technologies Ltd, India kapoor0588@gmail.com

With ongoing research producing promising results for the expanded use of various glasses and glass-ceramics in bone regeneration and dental applications, these findings have also inspired the investigation of a wide array of novel glass-based materials for contemporary applications such as wound healing, soft tissue engineering, cancer treatment, and bacterial/fungal-resistance. This session will cover each of these areas, and will focus on the examination of the role of compositions, processing methods, structures, and targeted cellular and biological responses of biomedical glasses and glass-ceramics, which warrant their candidacy for further use across the medical fields/wide array of medical applications.

Session 2: Dissolution and Interfacial Reactions

Organizers: **Nicholas Stone-Weiss**, Corning Inc., USA StoneWeiNM@corning.com
Stephane Gin, CEA Marcoule, France stephane.gin@cea.fr
Jincheng Du, University of North Texas, USA Jincheng.Du@unt.edu

This session will focus on the dissolution and degradation of glasses and glass-ceramics in aqueous environments, including both the intermediate role of interfacial reactions between aqueous environments and glasses, such as hydrolysis reactions, cation inter-diffusion, and incorporation of water into the glass matrix; condensation and precipitation reactions, and longer time frame aspects of glass dissolution. Studies that focus on glass surface and water reaction mechanisms, interfacial structures, and transport behaviors using either computational or experimental methodologies are particularly encouraged. Elucidation of the mechanisms and kinetics of glass degradation in studies conducted under various conditions also are welcomed, for example, those which investigate the influence of solution composition, temperature, glass composition, reactive surface area, gel layers, secondary phases, environmental materials, and radiation on glass dissolution.

Session 3: Glass Surfaces, Interfaces, and Coatings

Organizers: **Nick Smith**, Corning Inc., USA; smithnj@corning.com
Seong H. Kim, The Pennsylvania State University, USA seongkim@psu.edu

Glass surfaces remain an enduring area of scientific and technological challenges for applications of glass, and approaches to understand and customize surface and interfacial behaviors with glass modifications and value-added coatings represent a critical direction for glass's future. This session will focus on surfaces and interfaces in glassy and film-related systems, with a scope that includes fundamental studies of intrinsic glass surfaces, structure–property relations at surfaces/interfaces, innovations in glass surface characterization, novel methods for modifying surfaces, emerging concepts around functional coatings on glass, and properties of glassy/amorphous thin films.

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Session 4: Materials for Waste Immobilization

Organizers: **Jaime George**, Pacific Northwest National Laboratory, USA; jaime.george@pnnl.gov
John McCloy, Washington State University, USA john.mccloy@wsu.edu

Topics in this session will address new developments and innovative applications for materials and materials processing methods for the immobilization of nuclear and hazardous wastes. Progress in the processing and testing of materials for immobilization is critical to the efficient and safe treatment and disposition of nuclear wastes around the world. This session will focus on synthesis, characterization, testing, and modeling techniques that quantify and allow understanding of waste form behavior. Materials of interest may include glass, ceramics, glass-ceramics, and other composite matrices.

SYMPOSIUM 3: OPTICAL AND ELECTRONIC MATERIALS AND DEVICES — FUNDAMENTALS AND APPLICATIONS

Optical and electronic materials and devices are of critical importance for applications, including sustainable energy, information technology, nonvolatile memory, sensing, medical diagnostics and treatment, and national defense. This symposium will address processing and properties of optical and electronic materials as well as design, fabrication, and performance of functional devices.

Session 1: Laser Interactions with Glasses

Organizers: **Casey Schwarz**, Ursinus College, USA cschwarz@ursinus.edu
Keith J. Veenhuizen, Lebanon Valley College, USA veenhuiz@lvc.edu

The field of light interaction with matter has attracted increased attention with advances in ultrashort pulse lasers and high-power fiber lasers, along with the need to design and fabricate structures for use in low-loss applications. New phenomena have been observed and new applications have been developed in which lasers are employed in diverse areas, such as cutting, welding and engraving of glass, fabrication of waveguides, gratings and micro-channels inside the bulk of glass, and most recently, 3D printing through additive or subtractive laser-assisted processing. Lasers have been shown to be versatile in other applications of phase change, whereby glass or amorphous media are "converted" in a controlled way to crystalline or composites (glass-ceramic) material. These advances have been realized in optical phase change materials, laser-induced crystallization such as seen in the fabrication of active single crystal architecture, strengthening of glass, and other applications where a knowledge of not only the material but the light/matter interaction mechanism is required. This session will focus on the most recent and advanced issues pertaining to the science and applications of laser-glass interactions, such as laser irradiation effects, compositional and structural changes, and dynamics and mechanisms of laser-induced modifications.

Session 2: Charge and Energy Transport in Disordered Materials

Organizers: **Caio Bragatto**, Coe College, USA; cbragatto@coe.edu
Gabriel Agnello, Corning Inc., USA; agnellogp@corning.com

Understanding and prediction of the transport phenomena in disordered media is still an open problem for scientists in the field and are essential for the development of more efficient and cheap materials for a broad range of applications, including energy storage. Increased application of glassy and nanoheterogeneous (glass-ceramics, nanostructured composites) materials in areas such as energy generation and storage (photovoltaics, fuel cells, thermoelectrics, batteries), thermal isolation or conduction media, low-loss dielectrics, and electronic conduction (microelectronics, nanoelectronics), has encouraged research into the fundamental nature and control of transport processes. This session is intended to provide a general forum for the discussion of the mechanisms, properties, and applications of charge- and energy-transport phenomena in such disordered systems. Contributions on the experimental, theoretical, and modeling aspects of these topics are encouraged. Topics of interest include but are not limited to

- New material synthesis and characterization
- Novel experimental methods and instrumentation
- Charge transport theory and modeling (ionic and electronic transport)
- Thermal transport (including photonic systems and processes)
- Computational modeling of energy and charge transport

Session 3: Optical Fibers and Waveguides

Organizers: **Xianghua Zhang**, Université de Rennes 1, France; xiang-hua.zhang@univ-rennes1.fr
Jiawei Luo, OFS Laboratories, New Jersey, USA jluo@ofsoptics.com
Sylvain Danto, ICMCB, University of Bordeaux, France sylvain.danto@u-bordeaux.fr

The field of optical fibers application is not confined to telecommunication technologies. Optical fibers can be used in numerous other applications, such as sensing, new laser source, biomedicine, defense, and security. This session will be an opportunity for discussions about the state-of-the-art and recent advances in the design, fabrication, characterization, and applications of innovative and exotic fibers.

Topics of interest include but are not limited to

- New optical fibers design
- Optical fibers for communication
- Microstructure optical fibers

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- Mechanical reliability of optical fibers
- Optical waveguides for sensing
- Heavy metal oxide optical fibers
- Multicore fibers
- Multimaterial fibers
- Optical fibers for health
- Optical fibers for new laser sources
- Optical fibers for supercontinuum generation

Session 4: Optical and Optoelectronic Glass-based Devices

Organizers: **Juejun Hu**, Massachusetts Institute of Technology, USA
hujuejun@MIT.edu
Laeticia Petit, Tampere University, Finland
laeticia.petit@tuni.fi

Glasses are important materials for optical components and devices given their excellent optical transparency and versatile processing. Novel oxide and nonoxide glass compositions and fabrication technology development have further enabled emerging applications, such as light emission, imaging, high-speed communications, nonlinear op-tical signal processing, and sensing. This session will cover material synthesis and processing as well as device fab-rication and applications of innovative device architectures including, but not limited to, molded optics, diffractive optics, thin film optical coatings, fiber-optic devices, metamaterials/metasurfaces, and integrated photonic components.

Session 5: Rare-earth and Transition Metal-doped Glasses and Ceramics for Photonic Applications

Organizers: **Doris Moencke**, Alfred University, USA
moncke@alfred.edu
Volkmar Dierolf, Lehigh University, USA
vod2@lehigh.edu

Rare earth and transition-metal doped materials play fundamental roles in many applications, such as optical communication, sensing, medical diagnosis, and clean energy systems. The considerable impact is the results of intense research efforts on the development of new materials, materials platforms, and designs. A deep understanding of the underlying science that determine the optical properties of these dopants has been achieved over the years. This session will cover topics on

- Glass and transparent ceramic lasers
- Ceramic phosphors for solid-state lighting
- Wavelength converters for photovoltaic systems
- Nanoprobe phosphors for biophotonics
- Energy transfer or light storage mechanisms in solids
- Application in quantum information science
- Optical amplifiers for telecommunication

SYMPOSIUM 4: OUTREACH, GLASS TECHNOLOGY, MANUFACTURY, RECYCLING, AND CROSS-CUTTING TOPICS

Glass can be engineered with a wide range of properties and in many different forms for both active and passive applications for current and emerging energy and environmental technologies. This symposium will draw an arc from the fundamental approaches (interplay of theory, modeling and experiment) via material properties (compositional influences and signatures) and their characterization (in-situ, ex-situ) to manufacturing (novel processing techniques). A further important component of this symposium is a session on outreach because this topic will draw a substantial pool of future glass science researchers.

Session 1: STEM Outreach

Organizers: **Charmayne Lonergan**, Pacific Northwest National Laboratory, USA; Charmayne.lonergan@pnnl.gov
Kathryn Goetschius, Corning Inc., USA
GoetschiK@corning.com

This session is designed to highlight efforts of presenters to promote awareness and interest in science, technology, engineering, and mathematics (STEM) topics, both within their communities and abroad, as well as to educate the next generation of STEM professionals. Presentations will focus on outreach activities related to GOMD topics or general science and engineering. These topics can include exploring STEM essentials and best practices for developing and disseminating activities and tools to prepare students for technical careers; supporting K-12 STEM programs through outreach to teachers and schools; and the importance of addressing the imminent gap in a qualified STEM workforce, particularly in GOMD-related areas.

Session 2: Challenges in Glass Manufacturing

Organizers: **Irene Peterson**, Corning Inc., USA
petersonim@corning.com
Andries Habraken, CelSian, The Netherlands
andries.habraken@celsian.nl

The glass industry requires constant innovation to meet the needs for new compositions, new products, and sustainable manufacturing processes. This session will cover the spectrum of new research, development, and engineering advances from the lab to the factory, including

- Physics and chemistry of glass melting and forming via both modeling and experiments
- Energy efficiency strategies
- New furnace designs and process control methods
- Furnace materials—new materials, corrosion, and wear studies
- New concepts for melting and forming
- Post-forming treatments

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Session 3: Optical Fabrication Science & Technology

Organizer: **Tayyab Suratwala**, Lawrence Livermore National Laboratory, USA; suratwala1@llnl.gov

This session will be on the fabrication science and technology of optical components with focus on, but not limited to, lasers and telescope applications. The field of optical fabrication, which transforms bulk glasses or ceramics via grinding, cutting, polishing, etching, molding, and additive manufacturing into precision optics, continues its migration from more of an art to a science. Included in this scope will be a multidisciplinary (physics, chemistry, fracture mechanics, mechanics, tribology) approach to understanding the complex interactions between the glass or ceramic workpiece, abrasive or polishing media, and the tool, which influence the final workpiece properties (surface quality, surface roughness, and surface figure). In addition, this scope will include novel and recently developed finishing technologies, techniques, and characterization methods.

Session 4: Additive Manufacturing of Glass

Organizer: **Jonathan Massera**, Tampere University, Finland; jonathan.massera@tut.fi
Giorgia Franchin, University of Padova, Italy; giorgia.franchin@unipd.it

The session provides a forum for the exchange and discussion of current issues and trends in additive manufacturing (AM) of glasses. The session will cover recent theoretical and experimental advances in processing and characterization of 3D-printed glasses for biomedical, optical, architectural, functional, and artistic applications. The session will also provide a forum to a broader audience for emerging technological applications of 3D-printed glasses. All contributions from academia, national laboratories, and industries that address recent advances and new applications are welcome. Topics include

- Oxide and nonoxide glasses
- Polymeric systems
- AM methods
- Optical and electrical properties
- Glass structural characterizations
- Specific applications

Session 5: Recycling

Organizer: **Enrico Bernardo**, University of Padova, Italy; enrico.bernardo@unipd.it
Carol Click, Corning Inc., USA; clickc@corning.com

A common perception concerning glass is its infinite recyclability. However, recycling in strict sense, with cullet used as feedstock for the original articles ("closed-loop recycling"), is not straightforward. A fundamental limiting factor is the difficulty in the separation of glass from heterogeneities. Contaminants lead to defects, such as stones and streaks, or deviations from the original chemical composition. This symposium is open to the widest expressions of circular economy applied to glass. Closed-loop recycling may be improved, as an example, by new equipment and logistic strategies. The manufacturing of new glass-based construction materials ("open-loop recycling"), such as glass foams, glass-ceramics, alkali-activated materials (geopolymers), may represent a valid alternative, if providing adequate revenues to compensate for new thermal treatments and/or additives.

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