# FOURTH SÃO CARLOS SCHOOL ON GLASSES AND GLASS-CERAMICS

*April 27 – May 1, 2026 | São Paulo and São Carlos, Brazil*

The CeRTEV team (www.certev.ufscar.br), in collaboration with ICTP-SAIFR (IFT-UNESP), is pleased to announce the *Fourth São Carlos School on Glasses and Glass-ceramics*, to be held from April 27 to May 1, 2026, following the great success of the previous editions held in 2015, 2023 and 2024. This School is part of a series organized yearly by the International Commission on Glass (ICG) in Montpellier, Wuhan and Kolkata.

## SCHOOL OBJECTIVES

- Provide state-of-the-art knowledge on the structure and dynamic processes of glasses and glass-ceramics (diffusion, viscous flow, relaxation, liquid-liquid phase separation, and crystallization), as well as their optical, electrical, mechanical, and biochemical properties.
- Strengthen the international network of CeRTEV collaborators.
- Attract future students, postdoctoral researchers, and visiting scientists, while fostering collaborative research.
- Disseminate CeRTEV's faculty, infrastructure, and research facilities to Brazilian and international students and their supervisors.
- Emphasize *networking* as a key component of school.

## LAST EDITION


*Vitreous Materials Laboratory (LaMaV) (lamav.weebly.com). Instructors and participants of the third school (2024).*

# SPONSORS

FAPESP-CeRTEV, DEMa-UFSCar, ParqTec São Carlos, and ICG. Companies are being contacted for further funding.

# REGISTRATION

A small registration fee of *USD 290* is required to attend the school. However, we are pleased to offer *50 grants* that will waive the registration fee, cover hotel accommodation for up to seven nights, and provide lunch expenses for selected students and postdoctoral researchers. The number of grants may increase depending on the level of industry sponsorship.

Please note that transportation, health insurance, visa fees, and any other travel-related expenses must be covered by the students themselves or by their academic supervisors or home institutions.

Young researchers from academia and industry, as well as professors, are welcome to attend the school. However, financial support is not available for these participants.

To apply for a grant, interested and qualified students and postdoctoral researchers should contact us as soon as possible on a first-come, first-served basis. Applications must be submitted by e-mail before *October 30, 2025*, and include:

- An abstract of the applicant's thesis project;
- A letter of recommendation from the thesis supervisor, including a statement confirming coverage of the applicant's transportation, health insurance, visa, and other travel-related expenses.

E-mails for applications: dedz@ufscar.br / certevlamav@gmail.com / lancelotti.r@dema.ufscar.br

# LOGISTICS

We expect to welcome approximately 70 Ph.D. and M.Sc. students, along with a few young researchers from several countries. Over the course of five days, the school will offer around 40 hours of activities, including lectures, fire talks, poster presentations, technical visits, and scientific discussions.

The course is officially recognized by the Graduate Program in Materials Science and Engineering (PPGCEM) of the Federal University of São Carlos, which is rated CAPES level 7, the highest level in Brazil. Students interested in earning academic credits may officially enroll and will be eligible for the course credits upon completion of the required assignments. CEM-726 - Tópicos Especiais em Cerâmicas: Structure, Dynamics and Properties of Vitreous Materials.

# PRELIMINARY PROGRAM

This edition of the school will be held in São Paulo from April 27 to 28 at the Principia Institute, and in São Carlos at the Physics Institute of the University of São Paulo (USP) from April 29 to May 1. Transportation from São Paulo to São Carlos will be provided on April 28 after the lectures. Return transportation to Guarulhos International Airport (GRU) will be offered on the morning of Saturday, May 2.

Participants are encouraged to arrive in São Paulo on Saturday, April 25, or Sunday, April 26. We recommend visiting the renowned São Paulo Museum of Art (MASP) and exploring a traditional street fair on Sunday, both located on *Avenida Paulista* and within walking distance of the School hotel. Advance reservation for MASP is required through SophiA Biblioteca (http://www.masp.art.br/).

<table>
<tr><td></td><td></td><td colspan="2">São Paulo, SP</td><td colspan="3">São Carlos, SP</td><td></td></tr>
<tr><td>Time</td><td>Sunday<br>26/04/2026</td><td>Monday<br>27/04/2026</td><td>Tuesday<br>28/04/2026</td><td>Wednesday<br>29/04/2026</td><td>Thursday<br>30/04/2026</td><td>Friday<br>01/05/2026</td><td>Saturday<br>02/05/2026</td></tr>
<tr><td>08:00</td><td rowspan="10">Arrival and hotel check-in<br><br>Street Fair and MASP tour at Avenida Paulista</td><td>Welcome<br>1 min Fire Talks by the students</td><td>2 Lectures</td><td>2 Lectures</td><td>2 Lectures</td><td>Visit to glass and electron microscopy labs at UFSCar</td><td rowspan="10">Return to Guarulhos Airport (GRU)</td></tr>
<tr><td>10:00</td><td colspan="5">Short Coffee Break</td></tr>
<tr><td>10:15</td><td>2 Lectures</td><td>2 Lectures</td><td>2 Lectures</td><td>2 Lectures</td><td>Visit to the glass labs at EESC-USP</td></tr>
<tr><td>12:15</td><td colspan="5">Lunch Break</td></tr>
<tr><td>13:45</td><td>2 Lectures</td><td>2 Lectures</td><td>2 Lectures</td><td>2 Lectures</td><td rowspan="3">Guided tour to Sta. Maria Farm</td></tr>
<tr><td>15:45</td><td colspan="4">Extended Coffee Break with Poster Session</td></tr>
<tr><td>16:15</td><td>Poster session</td><td>1 Lecture</td><td>Guided Tour</td><td>Industry lectures</td></tr>
<tr><td>18:15</td><td>International Snack Tasting and Poster session</td><td>Transportation from São Paulo to São Carlos</td><td>Cocktail gathering at ParqTec São Carlos</td><td>Students night out</td><td>Farewell Dinner at UFSCar</td></tr>
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# INSTRUCTORS

The instructors are well-known experts in experimental, theoretical, and computer simulation studies of glasses. International academic and industry Instructors are currently being invited.

Ana Candida M. **Rodrigues** (UFSCar) – Electrical properties

Dr. Rodrigues is a Professor at the Department of Materials Engineering of the Federal University of São Carlos, UFSCar. She has been teaching basic Materials Science and topics related to glass and electrical properties in both graduate and undergraduate courses for 30 years. Her broader research interests include **electrical properties of oxide glasses and glass-ceramics, glass crystallization, and solid electrolytes for solid-state batteries**. Currently, she serves as the chair of Technical Committee TC23, "Glass Education," of the International Commission of Glass, and as the Education and Outreach Coordinator of the Center for Research, Technology, and Education in Vitreous Materials, CeRTEV.

Andréa S. S. de **Camargo** (BAM) – Optical properties

Dr. Camargo holds a B.Sc. and M.Sc. in Chemistry and a PhD in Applied Physics. In 2008, she became an Alexander von Humboldt fellow in a 2-year research stay at the University of Münster. For 17 years, she worked as a professor at the University of São Paulo in Brazil, where she led a productive lab focused on the development of **luminescent and optical materials**. In 2023, she accepted a new joint position in Germany, as Professor of the University of Jena and the Head of Division 5.6 – Glass at the Federal Institute for Materials Research and Testing, BAM, in Berlin. She has been an editor of J. Materials Science since 2020.

Carolina **Brito** (UFRGS) – Statistical mechanics of glass

Dr. Brito has been an Associate Professor of Physics at the Institute of Physics at the Federal University of Rio Grande do Sul, UFRGS, Brazil, since 2010. Her research focuses on Statistical Mechanics, with a particular interest in **complex systems, glassy materials, and superhydrophobic surfaces**. She holds a Level 1D Research Productivity Fellowship from CNPq. She was appointed as a Regular Associate of the ICTP-Abdus Salam International Centre for Theoretical Physics (2024–2029) and has been an Associate at ICTP-SAIFR since 2023.

Daniel R. **Cassar** (CNPEM) – Glass design by Machine Learning

Dr. Cassar is an assistant professor at the Ilum School of Science, part of the Brazilian Center for Research in Energy and Materials, CNPEM. He began his scientific career investigating kinetic processes in glasses, including

crystallization, viscosity, and relaxation. His current research interests lie at the interface between Materials Science and Computer Science, particularly **in artificial intelligence tools to accelerate the development of new materials**. Daniel has published more than 30 peer-reviewed papers in internationally indexed journals and is the developer of free software tools for glass scientists; GlassPy being the most popular.

## Danilo **Liarte** (IFT-UNESP and ICTP) – Glass physics in disordered elastic materials

Dr. Liarte is a Young Investigator (FAPESP) at the Institute of Theoretical Physics at UNESP and a researcher at the ICTP South American Institute for Fundamental Research. He is interested in several problems in the areas of **statistical physics** and **condensed matter physics**. He was a postdoctoral researcher at the Statistical Mechanics Group at the University of São Paulo (2011-2015) and at the Laboratory of Atomic and Solid State Physics at Cornell University (2015-2021). In 2022, he was a temporary professor at the Institute of Physics of the University of São Paulo. Currently, he develops analytical theories and numerical simulations to investigate geometric and topological aspects with relevance to diverse systems in **soft matter physics**, such as **liquid crystals**, **glasses**, and **disordered elastic materials**.

## Edgar D. **Zanotto** (UFSCar) – Crystallization and glass-ceramics

Dr. Zanotto has been a Professor of Materials Science and Engineering and Director of the Center of Education, Research, and Technology in Vitreous Materials, CeRTEV (www.certev.ufscar.br), at the Federal University of São Carlos, UFSCar, Brazil. He was a visiting professor at the University of Arizona, the University of Central Florida, and Université Libre de Bruxelles. Prof. Zanotto has been working on the **fundamentals of relaxation, crystal nucleation, crystal growth, and crystallization** of glasses for 48 years. His applied research projects focus on **glass-ceramics, bioactive materials, and machine-learning-driven** understanding and development of novel glasses. He has published over 400 articles on these subjects. He is a member of 5 science academies, editor of the *Journal of Non-Crystalline Solids* and an advisory board member of nine other scientific journals.

## Eduardo B. **Ferreira** (USP) – Glass sintering

Dr. Ferreira is an Associate Professor in the Materials Engineering Department, Engineering School of São Carlos, University of São Paulo, USP, Brazil, where he is a lecturer on Ceramic Materials Properties and Applications and Materials Thermodynamics. He is the Coordinator of Technology Transfer at the Center of Education, Research, and Technology in Vitreous Materials, CeRTEV. Prof. Bellini's research interests are focused on **glass sintering**, **glass forming ability**, **glass crystallization**, **phase transformation of glasses by DSC**, and the **development and applications of glasses and glass-ceramics.**

Francisco **Serbena** (UEPG) – Mechanical properties of glass-ceramics

Dr. Serbena holds a *Ph.D.* from Oxford University, UK, and is currently a professor at the Department of Physics, State University of Ponta Grossa, UEPG, Brazil. He has always worked with the **mechanical properties of materials**, including the brittle-ductile transition of metals and the fracture strength and toughness of glasses and glass ceramics. His main research focuses on understanding the underlying mechanisms that control the mechanical behavior of glass ceramics **and their link with the microstructure**.

Hellmut **Eckert** (USP) – Glass structure by EPR

Dr. Eckert is a Professor at the São Carlos Institute of Physics (IFSC) of the University of São Paulo, USP, and CeRTEV Vice Chair and Research Coordinator. He held professorships in Chemistry at the University of California, Santa Barbara, and the WWU Münster, before joining IFSC in 2011. He has published about 600 articles on the **methodology of solid-state nuclear magnetic resonance techniques and their application in materials science**, with a focus on structural studies of glasses and ion-conducting materials. In 2016, he received the George Morey Award of the American Ceramic Society. He is a member of the Coordination Panel in Physics of FAPESP.

Henrik **Bradtmüller** (USP) – Glass structure by NMR

Dr. Bradtmüller is an Assistant Professor of Physics at the São Carlos Institute of Physics (IFSC), part of the University of São Paulo, USP. Previously, he worked as a Postdoctoral Researcher at the Federal University of São Carlos, where he deepened his understanding of glass science while contributing to cutting-edge research on crystallization mechanisms and glass stability. His research focuses on **solid-state nuclear magnetic resonance (NMR) spectroscopy**, a powerful tool for probing disordered structures and advancing materials science in both academic and industrial applications.

José Pedro **Rino** (UFSCar) – MD simulations

Dr. Rino is a Professor at the Physics Department of the Federal University of São Carlos, UFSCar, São Carlos, Brazil. He has been working on the development of **interatomic potentials to describe the properties of diverse materials, including glass-formers, using molecular dynamics simulations**. Structural phase transformation induced by pressure, crystal growth, intermediate range order in amorphous solids, and their dynamical properties are some subjects of his interest.

Marcelo **Nalin** (UNESP) – Photonic glasses

Dr. Nalin holds a *Ph.D.* in Chemistry. He completed his postdoctoral training at the University of Paris XI, France (2003), the Institute of Physics, University of Campinas (2007), and the Department of Physics at the Sciences Faculty of UNESP Bauru (2009). In 2020, he was a visiting professor at the University of Bordeaux, France. He was an associate professor at the Federal University of São Carlos Department of Chemistry from 2009 to 2013. Since then, he has been an assistant professor at the Chemistry Institute of UNESP Araraquara. His research fields are the synthesis of **new glasses and glass-ceramics for photonics**, including **the development of new synthesis routes and characterization of luminescent and magneto-optical materials and nanoparticles**. He is a member of the Coordination Panel in Chemistry of FAPESP.

Marcos de **Oliveira** Junior (USP) – Glass structure by NMR

Dr. Oliveira holds a *Ph.D*. in Physics and has been an assistant professor at the São Carlos Institute of Physics, University of São Paulo, USP, Brazil, since 2019. He is interested in the **structural study of amorphous materials**, such as glasses, xerogels, and metal-organic compounds, using magnetic resonance techniques, including solid-state Nuclear Magnetic Resonance, cw- and pulsed-Electron Paramagnetic Resonance, and Dynamic Nuclear Polarization.

Paulo S. **Pizani** (UFSCar) – Raman spectroscopy

Dr. Pizani has been a Professor at the Physics Department of the Federal University of São Carlos, UFSCar, Brazil, since 1974. He has been working on the optical and vibrational properties of materials, primarily using Raman scattering to explore temperature and hydrostatic pressure (diamond anvil cell – DAC) structural phase transformations, the vibrational anharmonicity of glasses and crystals, **and crystallization kinetics.**

Ricardo F. **Lancelotti** (UFSCar) – Glass relaxation

Dr. Lancelotti is a postdoctoral researcher at the Federal University of São Carlos, UFSCar, Brazil, where he also earned his M.Sc. and Ph.D. researching the structural relaxation of glasses. He completed research internships at the University of California, Davis, USA, and at the University of Munich, Germany. His current research focuses on understanding **structural relaxation and its influence on glass properties** through **physical aging** and **densification** experiments.

Oscar **Peitl** (UFSCar) – Bioactive glasses and glass-ceramics

Dr. Peitl is an associate professor at the Department of Materials Engineering, Federal University of São Carlos, UFSCar, Brazil, and a principal investigator of CeRTEV. He did a specialization training on optical glasses at the Otto Schoot Institut and the Carl Zeiss Company in Germany in the mid-80s. He was a Larry Hench *Ph.D.* student and became a biomaterials researcher. He helped create two **new biomaterials, the "Biosilicate" glass-ceramic and the F18 bioglass.** Prof. Peitl has also been working with **ion exchange** on a low sodium content glass, **crystallization** of several oxide glasses, and **developing scientific equipment**, such as a glass viscometer, a roller quenching device, etc.

# ORGANIZERS

Prof. Edgar D. Zanotto – CeRTEV director (dedz@ufscar.br)

Prof. Hellmut Eckert – CeRTEV vice-director (eckert@ifsc.usp.br)

Prof. Ana C.M. Rodrigues – CeRTEV Education and Science Outreach coordinator (acmr@ufscar.br)

Prof. Eduardo B. Ferreira – CeRTEV Technology and Innovation coordinator (ebferreira@sc.usp.br)

Dr. Danilo Liarte – IFT-Unesp and ICTP-SAIFR (danilo.liarte@ictp-saifr.org)

Dr. Ricardo F. Lancelotti – CeRTEV Postdoctoral researcher (lancelotti.r@dema.ufscar.br)

Miss Laurie Leonardo, Administrative assistant (certevlamav@gmail.com)

# DATES and VENUES

**São Paulo, April 26 to 28, 2026 (2 nights)**

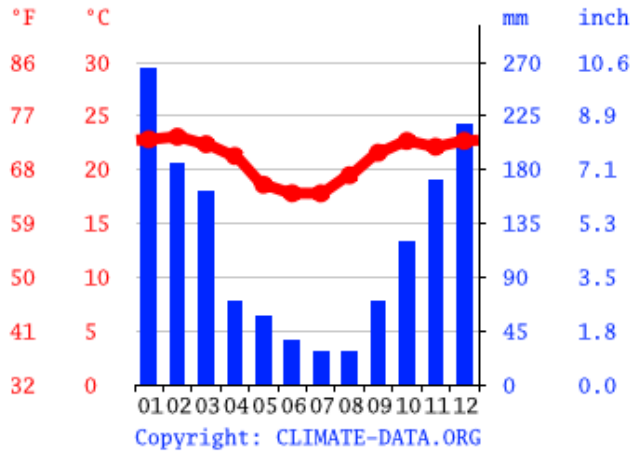
São Paulo is Brazil's largest city. Its metropolitan area has around **21 million people**. It is one of the leading financial and cultural hubs in Latin America and the world, offering an impressive variety of attractions. **Avenida Paulista** (walking distance from the school hotel) is one of the city's most iconic landmarks, featuring museums such as **MASP**, cultural centers, and a vibrant urban life. The **Ibirapuera Park**, with its museums, is one of the largest green spaces in the city and is perfect for walking and outdoor activities. For history lovers, the **Pinacoteca do Estado** and the **Museu do Ipiranga** are must-visit spots. For sports addicts, the **Football (soccer) Museum** is a must.

The city is also renowned for its spectacular gastronomy, featuring renowned restaurants and vibrant food markets that celebrate international cuisine. The **Municipal Market**, known for its renowned mortadella sandwich an enormous variety of fruits, is a must for those looking to explore local flavors. Additionally, São Paulo boasts a vibrant nightlife, featuring bars, concert venues, and theaters that stay open late. The city's cultural diversity is reflected in neighborhoods like **Liberdade**, known for its strong Japanese influence, and **Vila Madalena**, famous for its street art and vibrant bars.

*View of São Paulo, Brazil.*

**São Carlos, April 28 to May 2, 2026 (4 nights)**

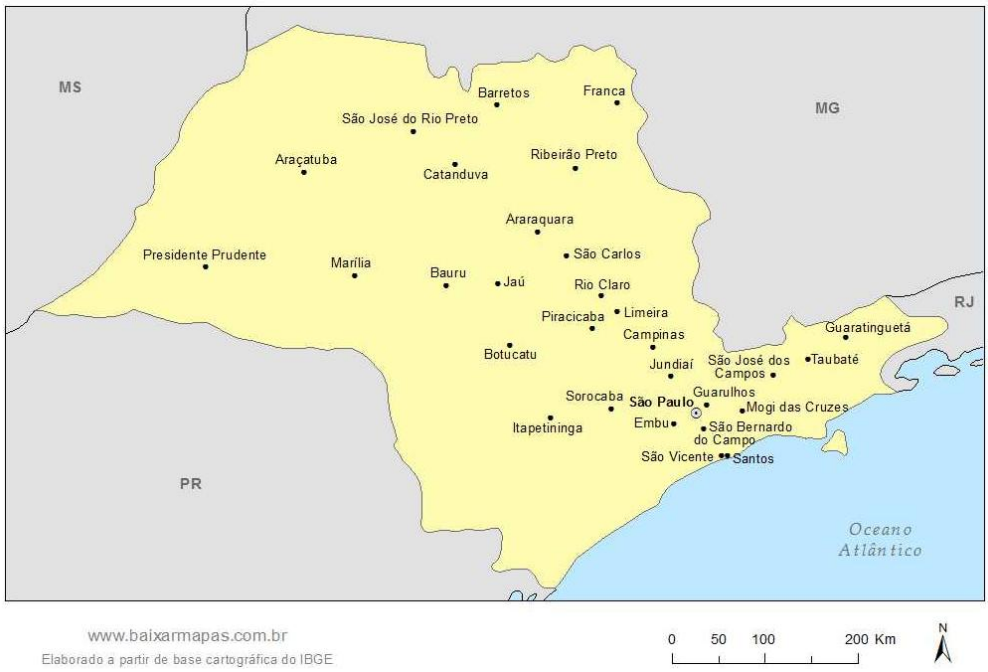
The city is known as Brazil's capital of science and technology, with approximately **2,500 Ph.D. and 250,000 inhabitants**; **1 Ph.D. for every 100 residents**. The public universities (USP and UFSCar) and the Embrapa Research Center in São Carlos are among Brazil's best. The city also boasts over **100 high-tech companies**, mainly in informatics, materials, optics, biotech, and chemistry. Preferred international airport for the School attendees: Guarulhos (São Paulo). São Carlos is approximately 270 km from Guarulhos airport. Finally, the weather is excellent with over **320 sunny days per year** and many rivers, waterfalls, and natural forest areas around the city.




*São Carlos, SP, Brazil. Average temperature and rainfall per month.*

*Views of São Carlos, Brazil.*


*Map of South America.*




*Map of São Paulo State showing São Paulo and São Carlos.*