

ISE Satellite Student Regional Symposium on Electrochemistry - 15th PTASchool of Electrochemistry On-line Edition

6th to 10th December, 2021



Instituto de Química, Universidade de São Paulo, São Paulo, Brazil



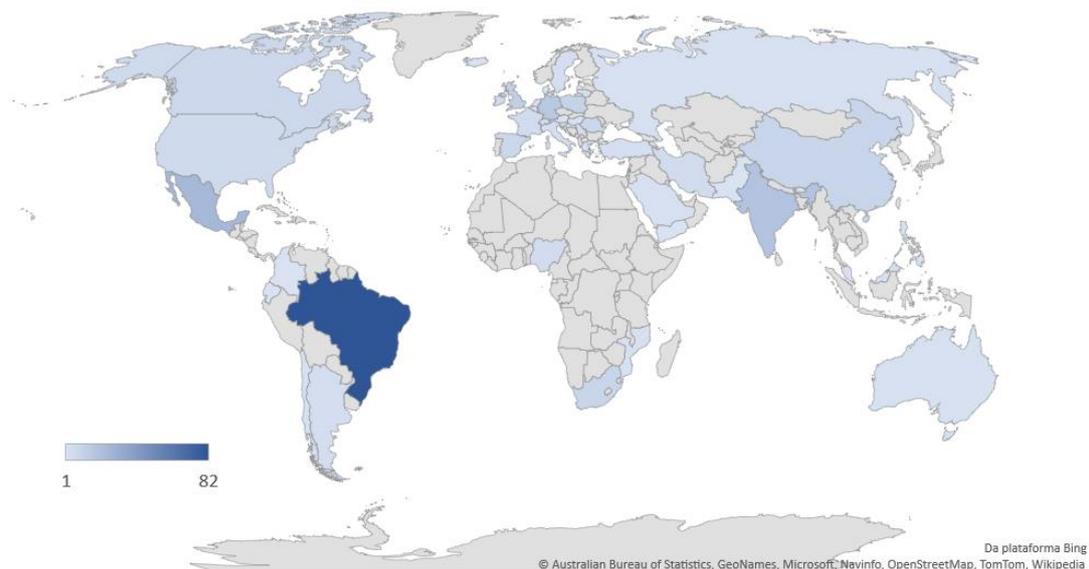
ISE REPORT

10th December 2021

The Paulo Teng An Sumodjo School of Electrochemistry is organized annually at IQUSP and celebrates its 15th Anniversary this year. The target audience is graduate students and young Ph.Ds from all over the world. Typically, participants are limited to 25 to ensure equipment access and to develop the experiments in small groups in hands-on physical conditions.

Because of the pandemic period that we are passing through, the ISE Satellite Student Regional Symposium on Electrochemistry - 15th PTASchool of Electrochemistry was virtual from 6th to 10th December 2021 (<https://sites.google.com/site/schoolofelectrochem/home?authuser=0>) to discuss electrochemistry theoretical aspects and update the community. In-person laboratory demonstrations will return in 2022. Hence, in 2021 we opened 50 participants position for one week of virtual 3 hours per day discussion about electrochemistry with different researchers around the world in a Zoom meeting room. The School was totally free and it is sponsored by Metrohm/Autolab and ISE.

This edition has a new record in registrations. More than 290 registrations (normally close to 100 for the physical one) and it was tough to select the candidates. We received registrations from 45 different countries.

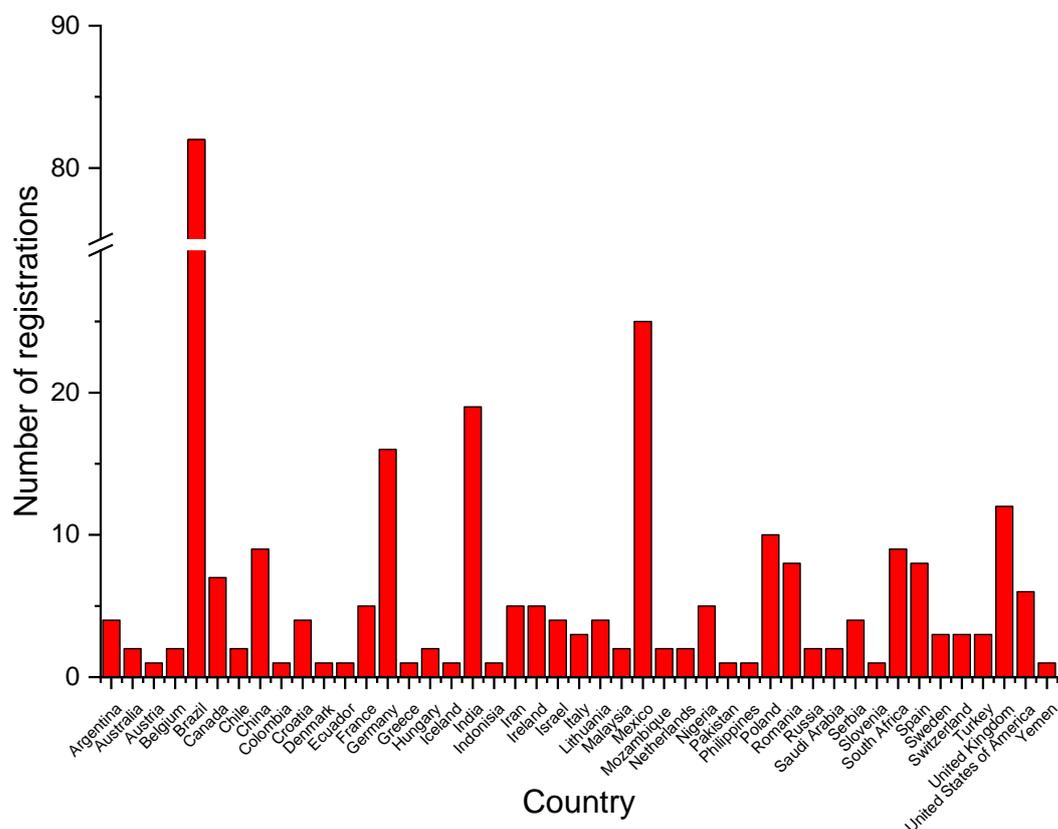


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Fifty participants were chosen to be in the Zoom room meeting to interact with the Speakers. Additionally, the staff was composed of electrochemists students (4 graduate students). Due to many registrations, and ISE support, we streamed the lectures on Youtube for the other 242 participants. More information about the youtube link and program are below. All the lecture are recorded and available free on the web.

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Scientific Programm

Day	Topic	Speaker
6th December 2021	9:00 - 9:30 (GMT-3) Opening ceremony 9:30 - 12:00 (GMT-3) Electrode Process	Thiago Paixão (University of São Paulo, Institute of Chemistry) Vitor Martins (University of São Paulo, Polytechnic School) Youtube: https://youtu.be/Git7uxsXsF0
7th December 2021	9:00 - 10:30 (GMT-3) Electrochemical kinetics and transport 10:45 - 12:00 (GMT-3) Modelling	Susana Torresi (University of São Paulo, Institute of Chemistry) Guy Denuault (University of Southampton) Youtube: https://youtu.be/oQpvqvOIJLs
8th December 2021	9:00 - 10:30 (GMT-3) Cyclic voltammetry 10:45 - 12:00 (GMT-3) Modelling	Mauro Bertotti (University of São Paulo, Institute of Chemistry) Guy Denuault (University of Southampton) Youtube: https://youtu.be/ba8d5fC5hVs
9th December 2021	9:00 - 10:30 (GMT-3) Reaction mechanism 10:45 - 12:00 (GMT-3) Modelling	Gabriel Meloni (University of Warwick) Guy Denuault (University of Southampton) Youtube: https://youtu.be/Q8PILN83M3E
10th December 2021	9:00 - 10:00 (GMT-3) Energy Storage 10:00 - 11:00 (GMT-3) Solutions for the development and characterization of energy conversion and storage devices 11:00 - 12:00 (GMT-3) Nanoscale electrochemistry (techniques, considerations and applications) 12:00-12:20 (GMT-3) Closing ceremony	Vitor Martins (University of São Paulo, Polytechnic School) André de Oliveira (Metrohm, Brazil) Gabriel Meloni (University of Warwick) Thiago Paixão (University of São Paulo, Institute of Chemistry) Youtube: https://youtu.be/nkizgxbguWc

Some images by day:

6th December 2021

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Electrode Process

PTASchool of Electrochemistry 2021

Vitor Leite Martins martinsv@usp.br
Dept. Eng. Metal. e de Materiais, Escola Politécnica, Universidade de São Paulo
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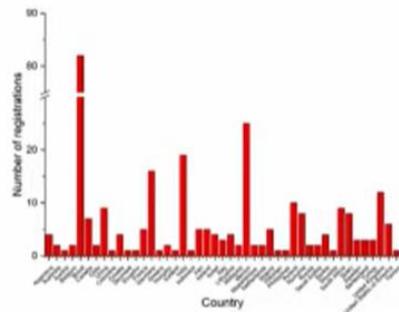
Partners



Thiago Regis Longo Cesar da Paixão



15th PTASchool of Electrochemistry



292
registrations
Zoom

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Thiago Regis Longo Cesar da Paixão

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Thiago Regis Longo Cesar da Paixão

Chemistry graduated from Universidade Estadual de Londrina (2008) and PhD in Chemistry from Universidade de São Paulo (2014). Research Associate at Chemical and Biological Engineering dept. of University of Sheffield (2015 - 2018) and at Instituto de Química, Universidade de São Paulo (2014, 2018-2020). FAPESP Young Investigator awardee at Escola Politécnica, Universidade de São Paulo (2021-today). Has experience in electrochemistry, especially on the development of electrochemical energy storage devices, as batteries and supercapacitors.

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7th December 2021

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Thiago Regis Longo Cesar da Paixão

Guy Denuault is Associate Professor of Electrochemistry. His research focuses on electroanalytical chemistry with particular emphasis on the theory and application of microelectrodes, scanning electrochemical microscopy, nanostructured microelectrodes, and the modelling of electrochemical processes. He has been organising the Southampton Electrochemistry Summer School since 1998.

Guy Denuault undertook his undergraduate training at the Reims Institute of Technology where he received his first degree and subsequently at Bordeaux University where he received his Master's degree. He joined the Southampton Electrochemistry Group and carried out experimental and theoretical (analytical + modelling) investigations into the application of ultramicroelectrodes in mechanistic and kinetic studies of coupled chemical reactions. He received his Ph.D. in 1989 and moved to the University of Texas at Austin where in the group of Allen Bard he worked on the development of the scanning electrochemical microscope (SECM).

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UNIVERSITY OF
Southampton



Guy Denuault

Modelling in Electrochemistry - 1

Guy Denuault
gd@soton.ac.uk

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Thiago Regis Longo Cesar da Paixão

Born in Cordoba, Argentina, she got the degree of Bachelor in Physical Chemistry at the Universidad Nacional de Cordoba, Argentina, in 1983 and Ph.D. in Chemistry from the same Institution in 1988. In the period 1989-1990, during her pos-doc, she worked at the Université Pierre et Marie Curie in Paris, France. At the end of 1990 she moved to Brazil as a visiting researcher at the Physics Institute at Campinas University (UNICAMP) and the Chemistry Department of São Carlos Federal University (UFSCar). In 1996 she was hired as assistant professor at the Institute of Chemistry, University of São Paulo and since 2006 she is full Professor at the same Institution where she was also involved in different executive duties. Her main research lines are the electrochemical study of nanomaterials and the relationship between size-geometry-reactivity of inorganic and organic materials and composites. At all, she has published around 200 papers in peer review journals with a high score of citations.

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Electrochemical kinetics

Susana Cordoba de Torresi

Instituto de Química - Universidade de São Paulo

São Paulo, Brasil



8th December 2021

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Thiago Regis Longo Cesar da Paixão

Mauro Bertotti received a B.Sc. from the Institute of Chemistry of the University of São Paulo (São Paulo, Brazil) in 1983 and became a postgraduate student at the same institution, where he received his M.Sc. (1986) and Ph.D (1991) under the supervision of Dr. Roberto Tokoro. For a year (1995/96), he was a postdoctoral fellow in the group of Professor Derek Pletcher at the University of Southampton, UK. At the University of São Paulo he has remained throughout his career, where he was appointed Full Professor in 2008. From March 2014 to 2018, he was the Head of the Department of Chemistry. His research interests are Electrochemical Sensors, Microelectrodes and Scanning Electrochemical Microscopy. He published 175 papers with almost 3000 citations. Mauro always stimulate students to exercise considerable creative freedom during years

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Thiago Regis Longo Cesar da Paixão



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Modelling in Electrochemistry - 2

Guy Denuault
gd@soton.ac.uk

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Cyclic Voltammetry (and an introduction to reaction mechanisms)

Mauro Bertotti (mbertott@iq.usp.br)
Institute of Chemistry – University of São Paulo

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9th December 2021

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Thiago Regis Longo Cesar da Paixão

Dr. Gabriel obtained his PhD in Chemistry in the University of São Paulo with an emphasis in electrochemistry and electrochemical techniques. After that, he started a postdoctorate in Warwick, UK from 2018 to 2021 in the Patrick Unwin's lab (Marie Curie Research Fellow). Have a large experience in the fabrication and application of nanometer sized electrodes for both high resolution electrochemical imaging and probing biological interesting systems such as living single cells and single bacterium.

Experienced on the development of new electrochemical tools and techniques having helped on the development of new Scanning Electrochemical Probe Microscopy Techniques. Keen on the development of cheap and accessible scientific instrumentation aimed at promoting scientific development on underdeveloped regions.

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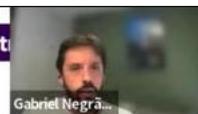
Thiago Regis Longo Cesar da Paixão



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Reaction Mechanism

Coupled heterogenous and homogeneous reactions

*Adapted from slides from Guy Denuault and
Thiago Paixão with a Gabba's twist.*

Dr. Gabriel Negrão Meloni

Honorary Research Fellow – University of Warwick

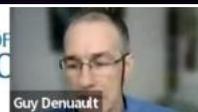
E: Gabriel.Meloni@warwick.ac.uk / gabrielnmeloni@gmail.com

[@Gabrielnegrão_](https://twitter.com/Gabrielnegrão_)

University of São Paulo – São Paulo – Dec. - 2021

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UNIVERSITY OF
Southampton



Modelling in Electrochemistry - 3

Guy Denuault
gd@soton.ac.uk

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Energy Storage

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Thiago Regis Longo Cesar da Paixão

MSc. André de Oliveira currently works in the Electrochemistry and Spectroscopy field at Metrohm Brasil, performing installations, support, training, and lecture activities in courses and seminars throughout Brazil and Latin America.

Bachelor's Degree in Chemistry from the University of São Paulo (2006-2009). He did an internship at the University of Florida (FAPESP/NSF) during his undergraduate. Master in Chemistry from the University of São Paulo (2010-2012).

In 2018, he started a personal Scientific Dissemination project through the Youtube channel "Science that there comes with History!". He was a semifinalist at Famelab Brasil 2018 and became a National Scientific Communication League member.

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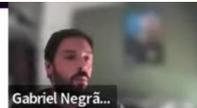
Solutions for the
Development and
Characterization of
Energy Conversion and
Storage Devices

December 10th, 2021

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Nanoscale electrochemistry : *techniques, considerations and applications*

Dr. Gabriel Negrão Meloni

Honorary Research Fellow – University of Warwick

E: Gabriel.Meloni@warwick.ac.uk / gabrielmeloni@gmail.com

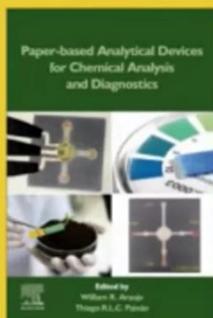
@Gabrielnegrão_

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Thiago Regis Longo Cesar da Paixão

Elsevier will raffle an
ebook tomorrow in the
closing ceremony



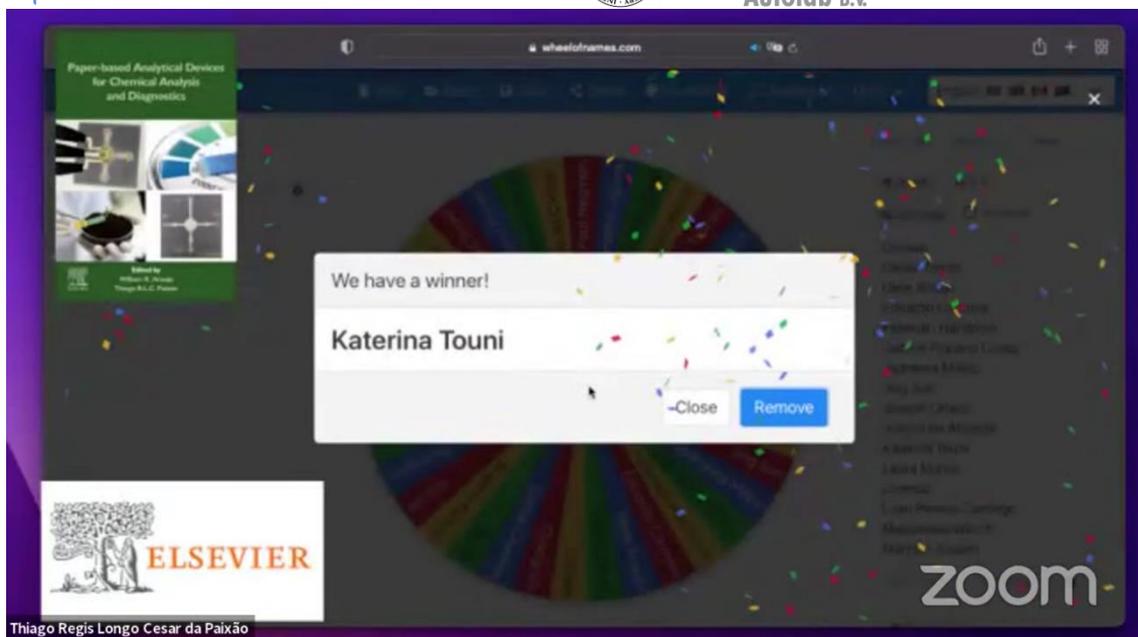
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Next year, we hope to return to the physical school with labs in the first week of December 2022 with the 16th PTASchool of Electrochemistry. Additionally, Elsevier raffles an ebook for one of the students in the ending ceremony (<https://www.elsevier.com/books/paper-based-analytical-devices-for-chemical-analysis-and-diagnostics/araujo/978-0-12-820534-1>).

Virtual Group Photo

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