

# Escola Politécnica Universidade de São Paulo



## Chemical Engineering Day at USP 2023

September, 21 (Thursday) - 08:00-12:00      Building 19  
Amphitheater - Ave. Lineu Prestes 580 Butantã São Paulo

A fruitful meeting with **Post-Doc Fellows** to see the main objectives and hypothesis that guide their researches, what is its technical, academic and society importance, and the challenges that are becoming met.

“The post-doctorate, as the research activities carried out after a doctorate, was consolidated in the 20th century. It plays a fundamental role in the development of academic careers and contributes to scientific and technological advances. It is during this period that researchers have the opportunity to explore deeply their areas of interest, expand their networks and gain additional experience before a more permanent leadership position in academia or industry. This is how it should be seen and practiced: as a prior, natural and virtuous, path for the incorporation of qualified staff into the academic and research environment, and not as an alternative to the formal job market in these sectors.” (*Luiz Valcov Loureiro*)

“The postdoctoral researcher is a professional with high technical knowledge, great learning capacity and is used to dealing with challenges. The postdoctoral position is the opportunity to further expand your mastery over a topic, now with more leadership and autonomy compared to a doctorate. It is the opportunity to develop new ideas, develop projects and gain experience in training masters and doctors, in addition to exercising critical review of the work of other researchers.” (*Moisés Teles dos Santos*)

“The Post-Doctorate at USP is a program carried out by holders of a Doctor's degree with the aim of improving the level of scientific excellence at the University. Enrollment in the Program must be made at the Research Commission of the Unit where the work will be developed. (<https://sites.usp.br/pesquisaeinovacao/wp-content/uploads/sites/1239/2023/04/Guia-Programa-de-Pos-Doutorado.pdf>).

In our Chemical Engineering Department PQI, we have several postdoctoral fellows (postdocs) developing excellent research. Due to their dedication, these researchers often end up isolating themselves from the rest of the Department. However, if we could put them together with graduate students (master's and doctorate) and even undergraduate students (Scientific Initiation) and professors, we are certain that there would be room for a lot of interaction. The postdoctoral student usually ends up managing the development of his/her research and, in this process, collaborates in the orientation of other researchers. With this, he/she has a broader view of the research activity and can collaborate with the opening of new research and collaboration fronts within the department. Chemical Engineering addresses many areas, but we know that interdisciplinary work, where one area blends with another, generates innovative and disruptive results.

For these reasons, we invite everyone to participate in the "Chemical Engineering Day", where the postdoctoral fellows will briefly present, and in a didactic way, their research areas, thus being able to stimulate technical interactions, networking or simply more comprehensive knowledge for everyone.” (*Aldo Tonso*)

“Hopefully, I wish that, as the postdocs share their activities with graduates, the doctoral students will be ready for a new research journey with the principal investigators. For the research areas, please see [https://sites.usp.br/peq\\_epusp/pb/orientadores/](https://sites.usp.br/peq_epusp/pb/orientadores/)” (Song Won Park)

## PRESENTATIONS:

Afonso Henrique Teixeira Mendes.

“Paper Engineering Challenges and research Opportunities.”

Adriano Ferreira de Mattos Silvarés.

“Leveraging New Technology Readiness Levels.”

Andressa Bastos da Mota Lima.

“Electrochemical processes in the context of climate emergencies.”

Leonardo Hadlich de Oliveira.

“High-pressure gas mixture absorption with ionic liquids for subsea natural purification.”

Thamyres Cardoso de Carvalho.

“Application of a hydrometallurgical route to purify columbite on a pilot scale.”

Raissa Antonelli.

“Adsorption and electrochemical regeneration in a clay-packed continuous reactor for the removal of antibiotics from wastewater.”

Geovânia Cordeiro de Assis.

“Photocatalysts based on metal oxide heterojunctions: Application in the photodegradation of hazardous contaminants.”

Lilian Cardoso de Mello.

“A critical review of CO<sub>2</sub> capture by adsorption process”

Syed Sikandar Shah.

“Synthesis, characterization and adsorption properties of novel hybrid activated charcoal adsorbent impregnated with nanoparticles dispersed in superabsorbent polymers.”

Éder Valdir de Oliveira.

“Evaluation of several catalyst support for the CO<sub>2</sub> hydrogenation to CO.”

Paulo Cardozo Carvalho de Araújo.

“Thermocatalytic Ammonia Decomposition under High Pressures.”

Louise Hase Gracioso.

“Greenhouse gas-based microalgae bioproducts: a potential biotechnology strategy.”

Lilian Caroline Kramer Biasi.

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Associate Ph.D. Researchers work in a collaborative role with the principal investigator. When in Academia, the researcher primarily conduct research with no formal teaching duties. Research associates may have a range of responsibilities, including conceiving research projects, supervising graduate students and post docs, and conducting research themselves. Often Associate Researcher and Post Docs are interchangeably described, but Associate Ph.D. Researcher usually has a previous record as Post Doc and conducts activities with more formal independence as a researcher, including negotiations with the patronage sources.

## Adriano Ferreira de Mattos Silveiras



Chemical Engineer graduated from Institute Mauá of Technology (IMT). Master of Engineering and Doctor of Science degrees in Chemical Engineering from Polytechnic School of the University of São Paulo (USP). Have worked in companies that develop software technologies and provide simulation and optimization services for processes and equipment for the oil and natural gas, petrochemical, biofuels, metallurgy and mining, and engineering and construction sectors around the globe (Aspentech Inc. and Engineering Simulation and Scientific Software - ESSS). As business consultant and commercial manager, implemented several technologies for designing and operational support of industrial processes; industrial data acquisition, monitoring and management systems; and process plant advanced operation control and optimization for companies such as: Petrobras, Ecopetrol, PDVSA, YPF, Braskem, BP, Shell, Galp and Raízen. Worked as professor in Postgraduate Process Engineering with Emphasis on Industrial Projects course (IMT). Teaches numerical heat transfer modeling at institute ESSS specialization course. Is also Associate Researcher, D.Sc. at USP and IMT.

### Research projects

- Solid Oxide Fuel Cell Operated with Ethanol Catalytic Reformer Products: Modeling, Catalytic Reformer Development and Experimental Validation;
- Smart Energy Green Hydrogen Project - Phase 1- Conceptual Project of an Integrated and Multipurpose Green Hydrogen and Green Ammonia Plant (PH2MP);
- Hydrate Formation Reaction Process – HIDROGAS;
- Pulsed XeCl Excimer Radiation for Optimizing the Polydispersity of Methyl Methacrylate Pre-Polymers;
- Mathematical Modeling of Photochemical Reactors Applied to Wastewater Treatment.

### Research interests

- Production of Green Hydrogen and Green Ammonia
- Fuel Cell Systems Modeling and Experimentation
- Hydrate Formation Phenomena
- Gas Capture, Separation and Utilization
- Photochemical Reactors
- Process Modeling and Simulation
- Computational Fluid Dynamics Modeling and Simulation

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Av. Luciano Gualberto 380 Tr.3 Zip Code 05508010 São Paulo. Brazil

Personal Phone: +5511 989751818

"Adriano F. M. Silveiras" <adriano.silveiras@usp.br>

Lattes: <http://lattes.cnpq.br/6102028781765047>

ORCID ID: [0000-0002-4718-069X](https://orcid.org/0000-0002-4718-069X)

## Afonso Henrique Teixeira Mendes



Electrical-Electronic Engineer graduated from the Faculty of Electrical Engineering of the State University of Campinas (UNICAMP). Master of Engineering and Doctor of Science degrees from the Chemical Engineering Department of the Polytechnic School of the University of São Paulo (USP). Have worked in technology development companies and suppliers of machinery, equipment, and services, for the Pulp and Paper sector, in several areas of Product Engineering, Engineering Services, Services Sales and Capital Sales, for Latin America (BELOIT, VALMET). Worked as professor in Postgraduate Pulp and Paper Specialization Course (USP). Currently, performs consulting, and teaching in qualification and training courses for professionals of the Pulp and Paper Industry (CENTRE). Is also member of the Tissue Paper Committee (ABTCP) and Associate Researcher, D.Sc. (USP).

### Research projects

- The structure of the paper and its influences on the quality of tissue products;
- Hydrate Formation Reaction Process – HIDROGAS;
- Diagnosis of reprographic paper dimensional stability by image analysis;
- Hygroexpansivity of reprographic paper manufactured from eucalyptus fibers in an industrial paper machine.

### Research interests

- Papermaking technology;
- Paper physics;
- Tissue and packaging papers grades;
- Test methods for paper properties.

### Associations

ABTCP (Associação Brasileira Técnica de Celulose e Papel)

RIADICYC (Red IberoAmericana de Docencia e Investigación en Celulosa, Papel y Productos Lignocelulósicos)

TAPPI (Technical Association of the Pulp and Paper Industry)

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Avenue Luciano Gualberto 380 Tr.3 Zip Code 05508010 São Paulo. Brazil

Personal Phone: +5519 997975642

"Afonso H. T. Mendes" <afonso.mendes@usp.br>

Lattes: <https://lattes.cnpq.br/4350354216437083>

ORCID ID: [0000-0001-7282-7910](https://orcid.org/0000-0001-7282-7910)

## Lilian Cardoso de Mello



Chemical Engineer graduated from Institute Mauá of Technology (IMT). Master of Engineering and Doctor of Science degrees in Chemical Engineering from Polytechnic School of the University of São Paulo (USP). Associate Researcher, D.Sc., at USP in the theme - *Heat and Mass Transfer Phenomena*, under supervision of Professors José Luís de Paiva and José Luis Pires Camacho. Assistant Coordinator of Sophomore course at Institute Mauá of Technology (IMT). Teaches Production Administration I and II, Supply Chain, Reverse Logistics in the Professional Education III Course at the National Service of Commercial Learning (SENAC). Works as Industrial and Environmental Engineer in Flowserve do Brasil.

### Research projects

- Critical review of CO<sub>2</sub> capture processes by adsorption;
- Desorption process under microwave heating;
- Desorption kinetics of carbamate, the reaction product of monoethanolamine (MEA) with carbon dioxide (CO<sub>2</sub>);
- Lab experiments and computational simulation of the reactive absorption in a gas-liquid reactor;
- Influence of process variables on cooling tower performance;
- Material planning and sales demand versus costs in the supply chain.

### Research interests

- Separation process, mass transfer with chemical reactions: desorption, adsorption, and absorption;
- Chemical processes modeling and simulation; Chemical reaction engineering
- Equipment design for industrial processes.

### Associations

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Avenue Lineu Prestes 580 Bloco 22. Zip Code 05508000  
São Paulo. Brazil

"Lilian C. Mello" <lilian.mello@usp.br>

Lattes: <http://lattes.cnpq.br/039709648401082>

ORCID ID:

LinkedIn: [www.linkedin.com/in/lilian-c-de-mello-59545820](http://www.linkedin.com/in/lilian-c-de-mello-59545820)

Post-Doctoral fellowship is aimed at distinguished researchers with a recent doctorate degree and a successful research track record. There are Post-Docs linked to running research projects, usually only when a position is announced. Also, there are Post-Docs positions with their individual research project which proposal must represent an addition to a pre-existent research group and should be developed in association with faculty in higher education and research institutions, or in the Industry' research centers. Usually Post Docs are temporary position after PhD but before having full formal independence as a researcher.



## **Amilton Barbosa Botelho Junior**



Chemical Engineer graduated from the Faculdades Oswaldo Cruz (2015). Master of Engineering degree (2018) from the Department of Chemical Engineering of the Polytechnic School of the University of São Paulo (USP) with internship at the University of British Columbia, Canada (UBC). Doctor of Science degree (2021) from the Department of Chemical Engineering of the Polytechnic School of the University of São Paulo (USP) with internship at University of Queensland, Australia (UQ). Post-doc at Department of Chemical Engineering (2021-2023) and current visiting post-doc at Stanford University in the Department of Chemical Engineering. Have worked in process development to obtain critical metals from mining and electronic residues such as bauxite residue and electric vehicle batteries, life cycle assessment and public policies towards sustainable development. SemeAd PQ Jr 2021 Academic Productivity Awards, Excellence in Review Award by Resources, Conservation and Recycling (2020) and Resources, Conservation and Recycling (2021) journals, and Vebleo Fellow Jr. USP best thesis award in Environmental Sustainability (2022).

### **Research projects**

- Recovery of rare earth elements from mining residues
- Separation of Ni, Co and rare earth elements by membrane
- Synthesis of membranes and use of electrodialysis for Li separation
- Life cycle assessment for recycling of electric vehicle batteries

### **Research interests**

- Hydrometallurgy
- Metals separation using organic compounds
- Membrane separation
- Circular economy
- Thermodynamic simulation

### **Associations**

ABM (Associação Brasileira de Metalurgia, Materiais e Mineração)

TMS (The Minerals, Metals & Materials Society)

### **Contact**

Department of Chemical Engineering. Polytechnical School. University of São Paulo.

Avenue Luciano Gualberto 380 Tr.3 Zip Code 05508010 São Paulo. Brazil

Personal Phone: +55 11 96585-4397 / +1 669-215-5455

"Amilton Barbosa Botelho Junior" <amilton.junior@usp.br>

Lattes: <http://lattes.cnpq.br/2813968107453528>

ORCID ID: <https://orcid.org/0000-0002-3421-6286>

## Andressa Bastos da Mota Lima



Materials Engineer graduated from Universidade Federal do Rio Grande do Norte (UFRN) in 2004. From March to November 2004, was a trainee in physics at the same university. Master of Engineering degree from Universidade Federal de São Carlos (UFSCar). Doctor of Science degree from São Carlos Chemistry Institute (IQSC-USP). Worked 18 months at the Fritz-Haber Institute der Max-Planck – Gesellschaft (FHI-MPG) in the group of Dr. Markus Eiswirth with whom learned the analysis of chemical reaction networks (CRN analysis). In 2019, Dr. Mota-Lima joined the research program of the Polytechnical School of USP, acting since 2021 as Research Fellow at RCGI.

### Research projects

- The Intercalation electrodes for recover of Lithium ion (*Project 68 - RCGI*);
- Ionic Liquids - study of ionic conductivity (*Project 72 - RCGI*);
- Electrochemistry and Catalysis at the Plasma-Liquid Interface.

### Research interests

- Electrochemical System of Energy interconversion;
- Plasma electrochemistry;
- Plasma Catalysis;
- Electrocatalysis of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>;
- Lithium recovery;
- Analysis of Chemical Reaction Networks (CRN).

### Associations

SBEE (Sociedade Brasileira de Eletroquímica e Eletroanalítica)  
ECS (The Electrochemical Society)

### Contact

Chemical Engineering Department. Polytechnical School.  
University of São Paulo.

Avenue Luciano Gualberto 380 Tr.3 Zip Code 05508010  
São Paulo. Brazil

Personal Phone: +5511 984741612

"Andressa Mota-Lima" <mota@usp.br>

Lattes: <http://lattes.cnpq.br/1551232682175035>

ORCID ID: [0000-0002-6820-9797](https://orcid.org/0000-0002-6820-9797)

## Antoniél Carlos Carolino Campos



Chemist graduated from Federal University of Rio de Janeiro (UFRJ). Master and Doctor of Science degrees from the Chemical Engineering Department of the Rio de Janeiro State University (UERJ) and Doctor of Science from Chemical Engineering Department of the University of Cantabria (UNICAN). Experience in material science focusing on polymers applications and nanomaterials. Main subjects: polyurethanes, silver nanoparticles and membrane separations.

### Research projects

- High Pressure Ammonia Decompositions (Petronas);

### Research interests

- Polymers;
- Nanostructured materials;
- Membrane separations;
- Olefin/paraffin gas separation.

### Associations

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Avenue Luciano Gualberto 380 Zip Code 05508010 São Paulo. Brazil

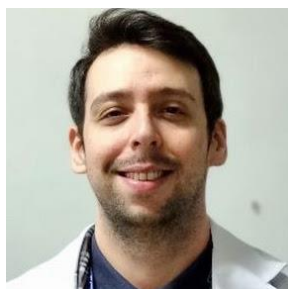
Personal Phone: +5521 969079846

"Antoniél Carlos Campos" <antoniélcamos@gmail.com>

Lattes: <https://lattes.cnpq.br/6883276196452825>

ORCID ID: [0000-0002-4312-7154](https://orcid.org/0000-0002-4312-7154)

## BRUNO RAMOS



Dr. Ramos is an Industrial Chemist who graduated from Goiás State University (UEG). He has Master degree in Chemical Engineering from the Polytechnic School of the University of São Paulo (Poli-USP) and Doctorate degree from the Tokyo Institute of Technology (TokyoTech, Japan). He undertook post-doctoral research at the Chemical Engineering Department of Poli-USP, which an international exchange at the University of Palermo, Italy. He contributed to the Research Center for Greenhouse Gas Innovation (RCGI) within the Department of Metallurgical and Materials Engineering at Poli-USP. Dr. Ramos held a research position at the Institute of Technological Research (IPT). He is Associate Professor at the Chemical Engineering Department of FEI University Center. He was former president and now a member of the advisory board of the Brazilian Association of Former Scholars in Japan (ASEBEX). Dr. Ramos collaborates with the Research Group in Advanced Oxidation Processes (AdOX) at the Chemical Engineering Department of Poli-USP.

### Research projects

- Design, simulation, fabrication and investigation of microreactors and microfluidic-based equipment;
- Design and evaluation of advanced oxidation processes and equipment;
- Synthesis of nanostructured semiconductor-based photocatalysts;
- Study of the effect of dopants in physicochemical properties of semiconductors;
- Mathematical modelling of the environmental fate of contaminants in surface water bodies.

### Research interests

- Photocatalysis;
- Process Intensification; Microfluidics;
- Additive and subtractive manufacturing for chemical processing equipment.

### Associations

ASEBEX (Associação Brasileira de Ex-Bolsistas no Japão)  
ABPOA (Associação Brasileira de Processos Oxidativos Avançados)

### Contact

Chemical Engineering Department, FEI University Center  
Av. Humberto de Alencar Castelo Branco, 3972-B, São Bernardo do Campo (SP), 09850-901

AdOx Research Group in Advanced Oxidation Processes.  
Chemical Engineering Department. Polytechnical School.  
University of São Paulo Rua do Lago 250 Semi-industrial Building, Block A and B, São Paulo, SP – Brazil 05508-080.

E-mail: [brunoramos@fei.edu.br](mailto:brunoramos@fei.edu.br); [bruno.ramos@alumni.usp.br](mailto:bruno.ramos@alumni.usp.br)

Lattes: <https://lattes.cnpq.br/8026565704942314>

ORCID ID: [0000-0003-1932-6046](https://orcid.org/0000-0003-1932-6046)

## Éder Valdir de Oliveira



Chemical Engineer graduated from the University of Uberaba (UNIUBE). Master of Chemical Engineering and Doctor of Science degrees from the Faculty of Chemical Engineering at the University of Campinas (UNICAMP). Have worked in fertilizer laboratories in the development of analytical processes at LabFert Analises in Uberaba city. Currently, has the position of post-doctoral in the Research and Innovation Laboratory in Catalytic Processes (LaPCat) at the University of Sao Paulo (USP), which the research line is related to the development of catalysts for the use of CO<sub>2</sub> and kinetic analysis of reactions.

### Research projects

- Development of Technological Alternatives for the Production of Green Hydrocarbons from CO<sub>2</sub>;
- Development of Catalysts to CO<sub>2</sub> conversion to C<sub>2</sub>-C<sub>4</sub> compounds.

### Research interests

- Kinetic Studies;
- CO<sub>2</sub> Reactions;
- Catalyst Development.

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago 250 Zip Code 05508080 São Paulo. Brazil

Personal Phone: +5519 982288263

"Éder Valdir de Oliveira" <edervaldir@usp.br>

Supervisors: "Rita Maria de Brito Alves" <rmbalves@usp.br>

"Martin Schmal" <mschmal@usp.br>

Lattes: <http://lattes.cnpq.br/3781046962253923>

## Geovânia Cordeiro de Assis



Graduated in BSc in Chemistry and MSc in Science and Environmental Technology from the State University of Paraíba (UEPB). PhD in Chemistry from the Federal University of Alagoas (UFAL). Currently, is a postdoctoral researcher in Chemical Engineering at the University of São Paulo (USP) on the Research Group in Advanced Oxidation Processes (AdOx). Member of the scientific committee of early career researchers of the Iberoamerican Conference on Advanced Oxidative Technologies (CIPOA). Has experience in heterogeneous photocatalysis; obtaining photocatalysts through different synthesis methods; spectroscopic techniques for advanced characterization of materials; Application of photocatalysts in advanced technologies for treating water and effluents; use of plastic waste as supports for photocatalysts.

### Research projects

- Development of technologies for treating industrial effluents;
- Heterogeneous photocatalysis;
- Synthesis and characterization of novel multifunctional materials applied in photocatalysis;
- Turning plastic waste into new photocatalytic materials.

### Research interests

- Heterojunctions between semiconductors for photocatalysis;
- Photocatalytic reactions in continuous flow microreactors;
- Use of plastic waste as support for photocatalysts;
- Emerging contaminants.

### Associations

CIPOA (Iberoamerican Conference on Advanced Oxidative Technologies);  
SBPMat (Brazilian Materials Research Society).

### Contact

AdOx Research Group in Advanced Oxidation Processes.  
Chemical Engineering Department. Polytechnical School.  
University of São Paulo.  
Rua do Lago 250 Semi-industrial Building, Block A and B, São Paulo, SP – Brazil 05508-080

AdOx <https://sites.usp.br/adox/>

"Geovania Cordeiro de Assis" <geovaniaassis@usp.br>

"Antonio C. S. C. Teixeira" <acscteix@usp.br>

Lattes: <http://lattes.cnpq.br/9519725389938114>

Google Scholar: <https://scholar.google.com/citations>

Orcid: <https://orcid.org/0000-0002-6581-6356>.

## Giovani Pavoski



Industrial Chemistry degree from the Pontifical Catholic University of Rio Grande do Sul (PUCRS). Holds Master's and Doctoral degrees from the Materials Science Department at the Federal University of Rio Grande do Sul (UFRGS). Completed a doctoral residency at the Autonomous University of Barcelona (UAB-Spain). Have worked in synthesizing and characterizing nanoparticles, as well as polymeric nanocomposites. Engaged in research within the field of environmental chemistry, focusing on metal recycling and analysis. Specializes in recycling industrial catalysts through pyro/hydrometallurgical processes. Proficient in synthesizing metallic nanoparticles using secondary sources such as catalyst residues, electronics, and polymeric composites as source materials. Currently, working as a Postdoctoral researcher at the Department of Materials Engineering at the University of British Columbia, Vancouver (UBC, 2023-present), and at the Department of Chemical Engineering at the Polytechnic School of the University of São Paulo (USP, 2020-present).

### Research projects

- Nanohydrometallurgy applying superparamagnetic nanoparticles for separation of critical metals;
- Hydrometallurgy for recovery of critical metals;
- Synthesis of functionalized metallic nanoparticles;
- Recycling of spent industrial catalysts.

### Research interests

- Waste recovery and treatment;
- Test methods for nanohydrometallurgy and hydrometallurgy.

### Associations

CRQ-V (Conselho Regional de Química 5 Região)  
REDVAR (Red de valorización de residuos)

### Contact

LAREX (Laboratory of Recycling, Waste Treatment and Extraction). Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago, 250, 2nd floor, Code: 05508080, Sao Paulo. Brazil.

Personal Phone: +5551992697446

"Giovani Pavoski" <[giovanipavoski@usp.br](mailto:giovanipavoski@usp.br)>

Supervisor: "Jorge Alberto Soares Tenório" <[jtenorio@usp.br](mailto:jtenorio@usp.br)>

Lattes: <https://lattes.cnpq.br/1764546495231980>

ORCID ID: [0000-0002-2610-6669](https://orcid.org/0000-0002-2610-6669)



## Leonardo Hadlich de Oliveira



Chemical Engineer graduated from the Federal University of Santa Maria (UFSM). Master of Science and Doctor of Science degrees from the Faculty of Chemical Engineer of State University of Campinas (Unicamp). Worked for ten years as Researcher in a Petrobras Project at State University of Maringá (UEM), designing adsorbents and adsorption processes for off-shore natural gas purification. Worked as consultant for different companies in silver nanoparticles applications and hydrogen production from water electrolysis.

### Research projects

- Undersea Separation of CO<sub>2</sub> from Natural Gas;
- High-pressure ammonia decomposition.

### Research interests

- High-pressure gas separation;
- High-pressure reactor design;
- Liquid-liquid extraction;

### Contact

Chemical Engineering Department, Polytechnical School, University of São Paulo.

Lago street 250, 3rd floor, Block B, High Pressure Laboratory, Zip Code 05508-080, Butantã, São Paulo – SP, Brazil.

Personal Phone: +55 44 99917-9871

E-mails: [leonardoh.deoliveira@gmail.com](mailto:leonardoh.deoliveira@gmail.com), [hadlich@usp.br](mailto:hadlich@usp.br)

Supervisor: Rita Maria de Brito Alves

Lattes: <http://lattes.cnpq.br/3307220127211597>

ORCID: <https://orcid.org/0000-0002-1793-4075>



## Lilian Caroline Kramer Biasi



Holds Bachelor's (2013), Master's (2016), and Doctoral (2021) degrees in Food Engineering from the University of Campinas (Unicamp). During the doctoral program, conducted research at Rice University in the Department of Computational and Applied Mathematics. Subsequently, completed a postdoctoral tenure at the School of Chemical Engineering of the University of Campinas (Unicamp, 2021). Currently, working as a Postdoctoral researcher in the Department of Chemical Engineering at the Polytechnic School of the University of São Paulo (USP, 2021-present) specializing in molecular dynamics simulations of vegetable oils. Possess expertise in different areas including process modeling and simulation, physical separations, phase equilibrium, distillation, vegetable oils and fats, thermodynamics, molecular dynamics simulation, and artificial intelligence.

### Research projects

- Molecular dynamics investigations of the utilization of organic solvents for extraction and refining vegetable oils;
- Development of PPE and investigation by molecular dynamics of SARS-CoV-2;
- Enhancing the value chain of Brazil nut processing cooperatives;
- Technical, economic and environmental feasibility of ethyl biodiesel production;
- Processes and production optimization of biofuels, bioproducts and biodiesel-bioethanol integrated biorefinery.

### Research interests

- Molecular dynamics;
- Chemical and food process simulation and optimization;
- Vegetable oils;
- Biofuels;
- Distillation, parastillation, and metastillation.

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Avenue Luciano Gualberto 380 Tr.3 Zip Code 05508010 São Paulo. Brazil

Personal Phone: +55 11 975916076

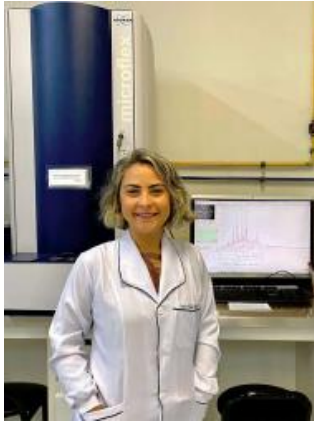
"Lilian C. K. Biasi" <lckbiasi@usp.br>; <lilian.biasi@outlook.com>

Supervisor: "Pedro de Alcântara Pessoa Filho" <pedropessoa@usp.br>

Lattes: <http://lattes.cnpq.br/9894100364383628>

ORCID ID: [0000-0003-0242-2357](https://orcid.org/0000-0003-0242-2357)

## Louise Hase Gracioso



Marine Biology graduated from Santa Cecília University (UNISANTA). Master and Doctor of Biotechnology degrees from the University of São Paulo (The Interunit Postgraduate Program in Biotechnology). During her Ph.D., she carried out part of her research at the University of Houston in Houston-Texas, USA, for a period of six months. She did postdoctoral work at the Research Center for Gas Innovation-USP, and in 2019 she was a visiting postdoc at the University of Padua in Italy. Have worked as Temporary Professor at the School of Arts, Sciences, and Humanities at the University of São Paulo (EACHUSP). She is currently a Pos-doc in the Chemical Engineering Department of the Polytechnic School of the University of São Paulo (USP). She has experience in the following areas: Environmental Microbiology, Biodegradation, Identification of Bacteria by Molecular Biology and MALDI-TOF Biotyper Mass Spectrometry, Bioprocesses, High-Performance Liquid Chromatography (HPLC), Semi-Preparative Chromatography, Gas Chromatography coupled to Mass Spectrometry and Mass Spectrometry focused on Proteomics.

### Research project

- Optimization of Microalgae Cultivation to induce the production of high-value molecules;
- Bioassisted CO<sub>2</sub> capture and conversion into bioproducts;
- Converting biogas to bioproducts;
- Biodegradation of phenol by bacteria isolated from the environment in biological reactors.

### Research interests

- Environmental microbiology;
- Environmental biotechnology;
- Bioremediation;
- Biorefinery.

### Association

RCGI (Research Centre for Greenhouse Gas Innovation – USP)

### Contact

**Bio4Tec Lab** - Environmental Research and Education Center, University of São Paulo, CEPEMA-POLI-USP

km 270 Conego Domenico Rangoni HWY Zip Code 11573-000 Cubatão - São Paulo. Brazil.

Personal Phone: +55 13 99117-6321

"Louise H Gracioso" <gracioso@usp.br>

Lattes: <http://lattes.cnpq.br/3156008854115283>

ORCID ID: [0000-0002-6140-1743](https://orcid.org/0000-0002-6140-1743)

## Meriellen Dias Pantolfi



Chemical Engineering degree from Faculdades Integradas de Aracruz (FAACZ). He holds a Master's degree and a Ph.D. from the Department of Chemical Engineering of the Polytechnic School of the University of São Paulo. Have worked with bioremediation processes using fungi in decontamination processes. Also has been involved in research in the medical field, focusing on the identification of disease markers. Specialist in mass spectrometry and chromatographic techniques. Proficient in water treatment using advanced oxidative processes. Worked with isolation and identification of lactic acid bacteria and production of bacteriocins. Currently working as a post-doctoral researcher at the Department of Chemical Engineering of the Polytechnic School of the University of São Paulo.

### Research projects

- Production of Turquoise Hydrogen from natural gas;
- Production of carbon black from the pyrolysis of tires;
- Omic study of bacteria treated with antimicrobial peptides.

### Research interests

- Waste recovery and treatment;
- Omics techniques using of bioremediation processes

### Associations

CRQ-XXI (Conselho Regional de Química 21º Região)

### Contact

DEMPSTER MS LAB. Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago, 250, 3rd floor, Code: 05508080, Sao Paulo. Brazil.

Office Phone: +5511 3091-2262

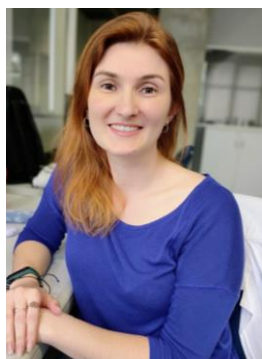
"Meriellen Dias Pantolfi" <meriellend@usp.br>

Supervisor: "Cláudio Augusto Oller do Nascimento" <oller@usp.br>

Lattes: <https://lattes.cnpq.br/0363345181825896>

ORCID ID: [0000-0002-2600-4582](https://orcid.org/0000-0002-2600-4582)

## Morgana Rosset



Chemical Engineer graduated from the Universidade Comunitária da Região de Chapecó (UNOCHAPECO) in 2012. Master (2017) and Doctor (2021) of Chemical Engineering degrees from the Federal University of Rio Grande do Sul (UFRGS). I worked on the development of catalysts for the conversion of bioethanol and biogas to obtain products with greater added value. I worked on the synthesis, characterization and application of adsorbents in the removal of pharmaceuticals from effluents. I also worked on the development of a hydrometallurgical route, to produce alumina, from bauxite processing waste. Currently, working as a post-doctoral researcher at the Department of Chemical Engineering at the Polytechnic School of the University of São Paulo (USP).

### Research projects

- Hydrogen production from the catalytic decomposition of ammonia.

### Research interests

- Catalysts development;
- Heterogeneous catalytic processes;
- Synthesis and physicochemical characterization of solid materials;
- Production of hydrogen;
- Biofuels;
- Green chemistry.

### Associations

### Contact

Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago 250 Zip Code 05508080 São Paulo. Brazil

Personal Phone: +55 49 989023337

"Morgana Rosset" <morgana@usp.br>

Supervisors:

"Rita Maria de Brito Alves" <rmbalves@usp.br>

"Martin Schmal" <mschmal@usp.br>

Lattes: <http://lattes.cnpq.br/2037988345843248>

ORCID ID:

## Paulo Cardozo Carvalho de Araújo



Industrial Chemical graduated from the Federal University of Sergipe (UFS). Master of Chemical Engineering from the Federal University of Sergipe (UFS) and Doctor of Chemical Engineering from the State University of Maringá (UEM). Have worked in a technology development project to build a system to measure Joule-Thomson's effect under high pressure with Leopoldo Américo Miguez de Mello Research and Development Center (CENPES-Petrobrás). Was one of the winners of the 2021 Inventor Award, granted by the Leopoldo Américo Miguez de Mello Research, Development and Innovation Center - (CENPES-Petrobrás), for his innovative capacity in the development of the Experimental Apparatus Project for Pressure and Temperature Measurements in a Pressurized System, which resulted in the filing of a patent application by Petrobras. At the moment is post-Doctoral fellowship of Polytechnic School of the University of São Paulo, in a project with Petronas company to research about Thermocatalytic Ammonia Decomposition at High Pressure, under the supervision of Professor Claudio Augusto Oller do Nascimento.

### Research project

- Thermocatalytic Ammonia Decomposition at High Pressure (USP- Petronas).

### Research interests

- Process Engineering;
- Control and Automation;
- Development of high-pressure systems;
- Intellectual and Industrial Property.

### Association

### Contact

High Pressure Laboratory. Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago 250. Semi-industrial Building, 2<sup>nd</sup> floor. São Paulo, SP – Brazil 05508-080.

Personal Phone: +55 79 99888-9865

"Paulo Cardozo Carvalho" <paulo.cardozo.qi@gmail.com>

Lattes: <http://lattes.cnpq.br/6638187661819697>.

ORCID ID: [0000-0003-2155-5331](https://orcid.org/0000-0003-2155-5331)



## **Raissa Antonelli**

Graduated in Chemical Engineering and Master in Chemistry from the Federal University of Triângulo Mineiro (UFTM), PhD in Chemical Engineering from the State University of Campinas (UNICAMP), she is currently a postdoctoral researcher in Chemical Engineering at the University of São Paulo (USP) in the Research Group in Advanced Oxidation Processes (AdOx). She is also a member of the scientific committee of early career researchers of the Iberoamerican Conference on Advanced Oxidative Technologies (CIPOA). She has experience in the area of advanced technologies for water and wastewater treatment, with emphasis on electrochemical advanced oxidative processes and adsorption, with the aim of solving environmental problems related to the occurrence of emerging contaminants in water bodies.

### **Research projects**

- Adsorption and oxidation in a clay-packed continuous reactor for antibiotic remediation;
- Processes for removing emerging contaminants from water;
- Degradation of drugs by advanced oxidative electrochemical processes using NaCl as electrolyte.

### **Research interests**

- Emerging contaminants;
- Wastewater treatment;
- Advanced oxidative processes;
- Adsorption process.

### **Associations**

CIPOA (Iberoamerican Conference on Advanced Oxidative Technologies)

### **Contact**

AdOx Research Group in Advanced Oxidation Processes. Chemical Engineering Department. Polytechnical School. University of São Paulo.

Rua do Lago 250 Semi-industrial Building, Block A and B, São Paulo, SP – Brazil 05508-080.

AdOx: <https://sites.usp.br/adox/en/>

"Raissa Antonelli" <raissaantonelli@usp.br>

"Antonio C. S. C. Teixeira" <acscteix@usp.br>

Lattes: <https://lattes.cnpq.br/7875283155788244>

ORCID ID: [0000-0001-8471-1835](https://orcid.org/0000-0001-8471-1835)



## **SYED SIKANDAR SHAH**



Applied Environmental Chemist graduation in Chemistry, Master of Science (M.Sc.) and Master of Philosophy (M.Phil.) in Applied Petroleum and Fuel Chemistry from the Institute of Chemical Sciences, University of Peshawar (UOP), Pakistan. Ph.D. degree in Chemistry from the Institute of Chemistry (IQ-Ar), São Paulo State University (UNESP), Araraquara-SP. Served as an Assistant Professor in Chemistry at the Department of Chemistry, Bacha Khan University Charsadda (BKUC), Pakistan. Currently, working as a post-doctoral researcher at the Research Group in Advanced Oxidation Processes (AdOx), Department of Chemical Engineering, Polytechnic School of University of São Paulo (USP).

### **Research projects**

- Deep removal and subsequent degradation of organic pollutants from wastewater;
- Adsorption of trace metals from industrial effluents;
- Bio-recovery of precious metals from low-grade ores;
- Desulphurization of petroleum products through adsorption.

### **Research interests**

- Wastewater treatment for emerging pollutants;
- Advanced oxidation Processes;
- Superabsorbent hydrogel and aerogel composites;
- Bioleaching and bio-recovery of precious metals.

### **Associations**

ABQ (Associação Brasileira de Química).

### **Contact**

Research group in Advanced Oxidation Processes (AdOx), Chemical Engineering Department, Polytechnic School of University of São Paulo.

Avenue Luciano Gualberto 380 Tr.3 Zip Code 05508010 São Paulo. Brazil

AdOx <https://sites.usp.br/adox/>

Personal Phone: +5511932894179

"Syed S. Shah" <syed.shah@usp.br>

"Antonio Carlos S.C. Teixeira" <acscteix@usp.br>

Lattes: <http://lattes.cnpq.br/1783847339520464>

ORCID ID: [0000-0002-7564-2548](https://orcid.org/0000-0002-7564-2548)

## Tiago Fernandes de Oliveira



Chemical Engineer (2014) graduated at Rural Federal University of Semiárido (UFERSA) acting on the synthesis of mesoporous molecular sieve and the use of clays for dye removal by adsorption. Master in Chemical Engineering (2016) at Federal University of Rio Grande do Norte (UFRN) and have worked with the processing of columbite ore by hydrometallurgical route. Doctor in Chemical Engineering at UFRN (2022) with a research in the obtaining of metal-modified molecular sieves for organic effluents remediation. Have worked in the development of a hydrometallurgical route for niobium and tantalum extraction from tin slag and columbite mineral at Larex-USP. Currently, works as a post-doctoral researcher at Research and Innovation Laboratory in Catalytic Processes (LaPCat) at the University of São Paulo (USP), in the development of catalysts for the hydrogen production from ammonia decomposition.

### Research projects

- Catalyst development for the catalytic decomposition of ammonium to hydrogen.

### Research interests

- Catalysts development;
- NH<sub>3</sub> decomposition reaction;
- Green-Hydrogen production;
- Physico-chemical characterization of solid materials;
- Heterogeneous catalysis.

### Associations

### Contact

Chemical Engineering Department. Polytechnical School.  
University of São Paulo.

Rua do Lago 250 Zip Code 05508080 São Paulo. Brazil

Personal Phone: +5584 996970755

"Tiago Fernandes de Oliveira" <tiagofernandes@usp.br>

Supervisors:

"Rita Maria de Brito Alves" <rmbalves@usp.br>

"Martin Schmal" <mschmal@usp.br>

Lattes: <http://lattes.cnpq.br/2943288968790991>

ORCID ID:



Researching and Supervising is Sharing the  
Thrill of Discovery.

