

# Faculty Research Projects/Lines - IQ – UNICAMP

Professor	Line(s)	Project(s)
Adalberto Bono Maurizio Sacchi Bassi	L1. Classical and Continuous Medium Thermodynamics	a. Material Non Stable States Thermodynamics. (L1) b. Homogeneous Processes Temporal Thermodynamics. (L1) c. Continuous Medium Thermodynamics. (L1)
Adriana Vitorino Rossi	L1. Chemistry Teaching L2. Spectroanalytics L3. Analytical Instrumentation	a. Development of procedures of extraction and analysis for vegetable origin compounds. (L2) b. New materials exploration and differential aproachs for developing methods of chemical analysis. (L2) c. Analytical Chemistry in Higher Education: experimentation, legislation and developing tendencies. (L1)
Alessandra Sussulini	L1. Bioanalytical L2. Spectroanalytics L3. Separation L4. Sample Preparation L5. Mass Spectrometry	a. Investigation and validation of potential biomarkers of bipolar disorder using lipidomics and proteomics strategies. (L1 OR L2 OR L3 OR L4) b. Biomolecules (DESI and MALDI) and elements (ICP) imagin in biologic tissues from mass spectrometry. (L1 and L2) c. Molecular and elementary characterization of Ayahuasca employing different techniques of mass spectrometry. (L2 OR L3 OR L4) d. Aplications of mass spectrometry in medical, forensic and petroleum sciences. (L5)
Airton Gonçalves Salles Junior	L1. Catalysis L2. Development and aplications of synthetic methodologies	a. Supramolecular catalysis over water. (L1) b. Photocatalysis in water. (L2)
Ana Flávia Nogueira	L1. Energy conversion L2. Chemistry of Materials L3. Coordination and Bioinorganic Chemistry	a. Hybrids and oganic solar cells. (L1) b. Sensitized semiconductor solar cells (or Grätzel solar cell). (L1 OR L3) c. Polymeric nanocomposites with carbonaceous materials. (L2) d. Photocatalysis for fuel generation. (L1 OR L2)
Ana Valéria Colnaghi Simionato Cantú	L1. Bioanalytics	a. Investigation of the metabolic profile of tumor biomarkers by capillary eletrophoresis e chromatographic techniques usa a biomolecular system approach. (L1) b. Comparative evaluation of methods of extraction of tetracyclines antibiotics in fish muscle. (L1) c. Modified nucleosides analysis, potential tumor biomarkers in prostate cancer, by capillary eletrophoresis with UV detection and coupled with mass spectrometry. (L1) d. Analysis of food cantaminants by capillary eletrophoresis and chromatographic techniques. (L1)
André Luiz Barboza Formiga	L1. Coordination and Bioinorganic Chemistry L2. Theoretical and Computational Chemistry L3. Energy Conversion	a. Ligands and complexes with catalytic and electrocatalytic properties design. (L1) b. Coordination compounds electronic structure. (L2) c. Molecular catalysts for water decomposition. (L3)
Anita Jocelyne Marsaioli	L1. Nuclear Magnetic Resonance Spectroscopy L2. Natural Products L3. Biotechnology L4. Catalysis L5. Organic Geochemistry	a. Communication mechanisms and chemical defense between living organisms. (L2) b. Biocatalysis. (L4) c. Microorganisms from petroleum and from human skin. (L3) d. NMR - supramolecular chemistry with CD, liposome, calixarenes e proteins. (L1) e. Aromes and Fragrances. (L2) f. Analysis of biomarkers in petroleum and sediments. (L5)
Anne Hélène Fostier	L1. Environmental Chemistry	a. Mercury emissions and depositions in Amazon region forests and urban and industrial environmets. (L1) b. Emerging contaminants in soils and environmental risks. (L1) c. Speciation and biogeochemical cycle of arsenic. (L1)
Caio Costa Oliveira	L1. Catalysis L2. Organic Synthesis L3. Development and Aplication of Synthetic Methodologies L4. Medicinal Chemistry	a. Bifunctional catalysts for enantioselective multicomponent reactions. (L1 OR L2 OR L3 OR L4) b. Enantiosseletiva Metal complexes synthesis and its applications in enantioselective catalysis. (L1 OR L2 OR L3 OR L4)
Camila Alves de Rezende	L1. Polymers L2. Energy Conversion L3. Chemistry of Materials	a. Studies of cell wall decomposition mechanisms and its biopolymers. (L2) b. Polymeric composites preparation from plant cell wall extracted components. (L1) c. Characterization of materials by scanning electron microscopy and probe microscopy (AFM, phase contrast, electric potential, pulsed-force). (L3)
Camilla Abbehausen	L1. Coordination and Bioinorganic Chemistry	a. Studies of metalloproteins as pharmacological target, mimetic synthesis and studies of activity modulation of those proteins by small molecules. (L1) b. Development and studies of metallopharmaceuticals. (L1)
Carla Beatriz Grespan Bottoli	L1. Separation L2. Sample Preparation	a. Development and characterization of stationary phase for capillary electrochromatography and liquid chromatography. (L1) b. Development and validation of methods for plant source sample analysis. (L2)
Carlos Cesar Bof Bufon	L1. Chemistry of Materials L2. Condensed Matter	a. Synthesis and aplication of hybrid nanostructures. (L1) b. Studies of transport mechanisms and electric charge build-up. (L2)
Carlos Henrique Inacio Ramos	L1. Biochemistry L2. Biophysics e Molecular Biology L3. Biotechnology	a. Studies of the structure and function of molecular chaperones. (L1 OR L3) b. Studies of proteins stability and foudling routes. (L2 OR L1) c. Enzyme engineering. (L3 OR L2)
Carlos Roque Duarte Correia	L1. Organic Synthesis L2. Catalysis L3. Development and Aplication of Synthetic Methodologies L4. Medicinal Chemistry	a. Development of new catalytic processes and its application in organic synthesis. (L1 OR L2 OR L3) b. Synthesis of biofunctional organic compounds for medicinal chemistry application. (L1 OR L4) c. New synthetic methodologies. (L1)
Cassiana Carolina Montagner Raimundo	L1. Environmental Chemistry L2. Sample Preparation L3. Separation	a. Organic emerging contaminants in aqueous samples: occurence, destination, removal and effects. (L1) b. Analytical methods for determining trace levels organic compounds. (L2 OU L3)

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Cátia Cristina Capêlo Ornelas Megiatto	L1. Organic Synthesis L2. Chemistry of Materials L3. Medicinal Chemistry L4. Catalysis	a. New biodegradable nanomaterials synthesis for pharmaceuticals and siRNA applications. (L3 and L1) b. Biosensors development for application on-site biopsy. (L3 and L1) c. Well-defined structure multifunctional dendrimers synthesis. (L1 OR L2) d. Development of supported catalysts. (L4 OR L2)
Celso Pasquini	L1. Analytical Instrumentation L2. Spectroanalytics	a. Terahertz Spectroscopy. (L1 OR L2) b. Near infrared spectroscopy (NIR). (L1 and L2) c. Atomic absorption spectroscopy. (L1) d. Laser induced breakdown spectroscopy (LIBS). (L1)
Celso Aparecido Bertran	L1. Biocompatible Ceramics L2. Colloidal Chemistry L3. Condensed Matter	a. Bioglasses modification: surface enrichment with calcium ions e usage of niobium as lattice modifier. (L1) b. Porous bioglasses: synthesis by sol-gel, pores connectivity and bioactivity. (L1) c. Bioactive particles formation in self-assembled systems. (L3) d. Surfaces and interfaces properties. (L2 OR L3)
Claudia Longo	L1. Chemistry of Materials L2. Energy Conversion L3. Electrochemistry	a. Synthesis and characterization of semiconductor oxides for solar energy conversion. (L2) b. Semiconductor electrodes for applications arising from solar energy conversion: organic pollutants photocatalytic oxidation, CO <sub>2</sub> and solar cells photoelectrochemistry. (L2 OR L3) c. Hydrogen production through alkaline medium water electrolysis. (L2)
Cláudio Francisco Tormena	L1. Theoretical Calculations Application in Organic Molecules Structure L2. Nuclear Magnetic Resonance Spectroscopy L3. Organic Physical Chemistry	a. Study of transmission mechanisms of scalar coupling through the space. (L2) b. Molecular electronic structure and its relation with NMR parameters and conformational stability. (L2) c. Diffusion technique application for DOSY NMR in the study of complex mixtures. (L2) d. Reaction mechanisms studies by NMR. (L2 OR L3)
Daniel Fábio Kawano	L1. Medicinal Chemistry L2. Theoretical Calculations Application in Organic Molecules Structure L3. Natural Products L4. Organic Synthesis	a. Bioactive compounds planning and obtaining as possible candidates to pharmaceuticals employed in the treatment of high prevalence diseases. (L1)
Daniela Zanchet	L1. Catalysis L2. Chemistry of Materials	a. Model heterogeneous catalysts synthesis, characterization and evaluation. (L1) b. Colloidal nanoparticles structural aspects. (L2) c. Industrial catalysts. (L1)
Denize Cristina Favaro	L1. Biochemistry L2. Nuclear Magnetic Resonance Spectroscopy L3. Organic Physical Chemistry	a. Study of $\beta$ -lactamases structure and dynamics by NMR in solution. (L2) b. Study of OXA enzymes dynamics and its correlation with enzymatic efficiency. (L2) c. Structural studies of proteins composing the Type IV Secretion Systems of Xanthomonas axonopodis pv. citri by high resolution Nuclear Magnetic Resonance. (L1 OR L2)
Diego Pereira dos Santos	L1. Spectroscopy L2. Vibrational Spectroscopy L3. Chemistry of Materials	a. Surface-Enhanced Raman spectroscopy (SERS). (L2) b. Metallic nanostructures optical properties. (L1 OR L3)
Dosil Pereira de Jesus	L1. Separation L2. Analytical Instrumentation	a. Development of analytical methods by capillary electrophoresis. (L1) b. Miniaturization of analytical systems (microchip). (L2)
Edvaldo Sabadini	L1. Colloidal Chemistry	a. Complex fluids rheology. (L1) b. Supramolecular complexes. (L1) c. Milli and microsecond dynamics. (L1)
Emílio Carlos de Lucca Júnior	L1. Organic Synthesis L2. Catalysis L3. Development and Applications of Synthetic Methodologies	a. Total synthesis of natural products. (L1) b. Transition metal catalyzed aliphatic C-H bonds functionalization. (L3 OR L1 OR L2)
Fabio Augusto	L1. Separation	c. Water photoelectrolysis, generation and usage as clean fuel. (L1 OR L2) b. Extraction microtechnics combined with GCxGC: Potential and development. (L1) c. Multidimensional Gas Chromatography for characterizing lipids, fatty acids and its derivatives. (L1)
Fabio Cesar Gozzo	L1. Mass Spectrometry L2. Biochemistry L3. Organic Physical Chemistry	a. Development of adenosine kinase inhibitor quinazolines compounds for therapeutic use. (L1 OR L2) b. National Institute of Science and Technology in Bioanalytics. (L1 OR L3) c. Proteomic Analysis of Intracellular Peptides Modulators of Signaling Pathways. (L1 OR L2) d. Development and Application of Mass Spectrometry Techniques for the Study of Superior Structures of Proteins and their Complexes. (L1 OR L3)
Fernando Antônio Santos Coelho	L1. Development and Applications of Synthetic Methodologies L2. Organic Synthesis L3. Mass Spectrometry L4. Medicinal Chemistry	a. Morita-Baylis-Hillman in the Synthesis of Natural Products. (L2) b. Mechanistic Study of Organic Reactions by Mass Spectrometry. (L3) c. Use of Morita-Baylis-Hillman adducts in the development of new synthetic methodologies. (L1) d. Total Synthesis of Sesquiterpenes. (L2) e. Biological Synthesis and Evaluation of New Substances. (L4)
Fernando Aparecido Sigoli	L1. Spectroscopy L2. Chemistry of Materials	a. Nano-particles of low-phonon lattice inorganic materials doped with rare earth ions and embedded in thin films of silica or hybrid materials. (L1) b. Optical properties of inorganic, organic and hybrid matrices containing rare earth ions. (L2)
Fernando Galembeck	L1. Colloidal Chemistry L2. Polymers	a. Insulator electrostatics: electrification mechanisms and applications. (L2) b. Synthesis and properties of latexes, nanocomposites and blends. (L2)

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Flavio Leandro de Souza	L1. Energy conversion L2. Chemistry of materials	a. Photoelectrochemistry cells. (L1) b. Nanometric oxide materials for application as photocathode and photoanode. (L2) c. Photoelectrolysis of water, generation and use as clean fuel. (L1 OR L2)
Francisco Benedito Teixeira Pessine	L1. Biological Chemistry	a. Encapsulation of drugs in carriers. (L1)
Gildo Giroto Júnior	L1. Chemistry Teaching L2. Analytical instrumentation	a. Development of interdisciplinary teacher training strategies. (L1) b. Development of Pedagogical Knowledge of the Content in initial and continuing teacher education. (L1) c. Development of analysis methodologies for sugarcane diesel with a main focus on farnesene and its derivatives. (L2)
Heloise de Oliveira Pastore	L1. Chemistry of Materials	a. Micro and Mesoporous Molecular Sieves. (L1) b. Lamellar Materials. (L1) c. CO <sub>2</sub> capture and storage. (L1)
Igor Dias Jurberg	L1. Organic Synthesis L2. Catalysis L3. Medicinal Chemistry L4. Photochemistry and Photophysics	a. Hydrogen bonds catalysis. (L2) b. Exploring the chemistry of isoxazol-5-ones as versatile building blocks in organic synthesis. (L2 OR L1) c. New strategies for preparing indolizidinic alkaloids. (L1) d. Photochemistry of Aryldiazoacetates Employing Visible Light. (L4)
Italo Odone Mazali	L1. Chemistry of Materials L2. Spectroscopy	a. Integrated Chemical Systems: Synthesis of Inorganic/Inorganic Core-Shell Nanoparticles in Functional Porous Supports. (L1) b. Influence of Nanostructuring on the Catalytic Activity of Hybrid Semiconductor Oxides Supported in Porous Arrays. (L1) c. Raman spectroscopy applied to nanostructured materials. (L2) d. Size-controlled synthesis and morphology of inorganic materials: relationship between size, morphology and property. (L1)
Ivo Milton Raimundo Junior	L1. Analytical Instrumentation L2. Spectroanalytics	a. Fluorescent sensors and nanoparticles for analytical applications. (L2 OR L1) b. Sensors for the determination of species of environmental interest with near infrared detection. (L2 OR L1) c. Fluid microsystems for analytical purposes. (L1 OR L2) d. Analytical Applications of Terahertz Spectroscopy. (L2 OR L1) e. Laser-induced breakdown spectrometry (LIBS) (L1 OR L2)
Jackson Dirceu Megiato Júnior	L1. Energy Conversion L2. Chemistry of Materials L3. Coordination and Bioinorganic Chemistry L4. Catalysis	a. Supramolecular polymers for application in solar cells. (L1) b. Intelligent polymers capable of self-preparing. (L2) c. Super resistant interlaced polymers. (L2 OR L3) d. Preparation of new catalysts for biorefinery processes. (L4) e. Supramolecular Silicones. (L2)
Jarbas José Rodrigues Rohwedder	L1. Analytical Instrumentation L2. Spectroanalytics	a. Methods and instrumentation for the determination of gaseous species and volatile compounds using NIR spectroscopy. (L1 OR L2) b. Methods and instrumentation for determining fuel quality parameters using NIR spectroscopy. (L1 OR L2) c. Methods and instrumentation for the determination of gaseous species and volatile compounds using Terahertz Spectroscopy. (L2) d. Methods and instrumentation for drug analysis using NIR spectroscopy. (L1)
José Alberto Fracassi da Silva	L1. Bioanalytics L2. Separation L3. Analytical instrumentation L4. Electroanalytics	a. Microfluidic Devices for Cell Manipulation and Cell Component Detection. (L1 OR L2) b. Development of a new Lab-on-a-chip for amino acid analysis in complex matrices: application on the detection of glutamate in foods. (L2) c. Development of instrumentation and methods for capillary electrophoresis and analysis microchips. (L2 OR L3 OR L4) d. Development of instrumentation and methods in mass spectrometry for analytical applications. (L3)
Juliano Alves Bonacin	L1. Energy Conversion L2. Nanomaterials and Nanostructures L3. Coordination and Bioinorganic Chemistry L4. Chemistry of Materials	a. Design of New Catalysts for Water Splitting Applications. (L1 OR L2 OR L3) b. Study of water oxidation mechanism by new catalysts. (L1 OR L3 OR L4) c. 3D Printed Electrodes Development for Oxygen Evolution Reaction Studies. (L1 and L4) d. Heterogeneous Catalysts for Water Decomposition. (L4)
Julio Cezar Pastre	L1. Development and Applications of Synthetic Methodologies L2. Organic Synthesis L3. Catalysis L4. Medicinal Chemistry	a. Development and Application of Synthesis Methodologies under Continuous Flow Reaction Conditions. (L1)
Lauro Tatsuo Kubota	L1. Electroanalytics L2. Bioanalytics	a. Development of electrochemical detection system and electrochemical sensors. (L1) b. Application of nanostructured field effect transistors in the analysis of biochemical and neurochemical processes. (L2) c. Development of a paper electrochemical detection device for use in point of care testing. (L1 OR L2) d. Use of new nanostructured materials for the development of molecular detection/recognition devices. (L1 OR L2)
Leandro Martínez	L1. Biophysics and Molecular Biology L2. Theoretical and Computational Chemistry	a. Molecular dynamics of biomolecules. (L1) b. Development of simulation algorithms and data analysis. (L1 OR L2)
Leandro Wang Hantao	L1. Mass Spectrometry L2. Chemistry of Materials L3. Separation	a. Development and application of ionic liquids and their derivatives in analytical chemistry, with an emphasis on separation. (L2 OR L3) b. Characterization of oils using multidimensional gas chromatography. (L1 OR L3) c. Molecular analysis of plant metabolites of commercial interest and their derivatives using gas chromatography and mass spectrometry. (L1 OR L3)
Ljubica Tasic	L1. Biochemistry L2. Biotechnology L3. Nuclear Magnetic Resonance Spectroscopy	a. Biomolecules characterization. (L1 OR L2) b. guest-host interactions. (L1) c. Bioethanol. (L2) d. Metabolomics. (L3)

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Luciana Gonzaga de Oliveira	L1. Biotechnology L2. Natural Products	a. Enzymes in Asymmetric Synthesis. (L1) b. Biosynthesis of Polyketide and Non-Ribosomal Peptides. (L2)
Luiz Carlos Dias	L1. Organic Synthesis L2. Application of Theoretical Calculations to Organic Molecule Structure L3. Development and Applications of Synthetic Methodologies L4. Medicinal Chemistry	a. Total synthesis of bioactive compounds. (L1 OR L2 OR L3 OR L4)
Marcelo Ganzarolli de Oliveira	L1. Nitric Oxide and Biomaterials Biochemistry	a. Nitric oxide donor biomaterials for topical and coating applications. (L1) b. Biological effects of nitric oxide donors on inflammation and cell proliferation. (L1) c. Microbicidal Effects of Nitric Oxide Donors. (L1)
Márcia Cristina Breikreitz	L1. Chemometrics L2. Separation L3. Spectroanalytics	a. Development of pharmaceutical products and processes based on the Quality-by-Design strategy. (L1) b. (spot and imaging) NIR and Raman spectroscopy and Chemometrics for the development and quality control of pharmaceutical products. (L1 OR L3) c. Development of chromatographic methods in association with chemometric methods. (L1 OR L2)
Márcia Miguel Castro Ferreira	L1. Chemometrics L2. Medicinal Chemistry L3. Theoretical and Computational Chemistry L4. Application of theoretical calculations to the structure of organic molecules	a. European Community Project, FP7 (DIBANET). (L1) b. New approaches and applications of chemometric methods to QSAR studies. (L3) c. Applications of Chemometric methods for the quality control of industrial products. (L1)
Marco Aurélio Zezzi Arruda	L1. Bioanalytics L2. Spectroanalytics L3. Analytical instrumentation L4. Sample preparation L5. Separations	a. Comparative metallomics of sunflower leaves ( <i>Helianthus Annus L.</i> ). (L1) b. Metal-Induced Oxidative Stress: New Approaches. (L1) c. Comparative investigations involving genetically modified organisms. (L1 OR L3) d. Development of elementary bioimaging methods employing laser ablation and mass spectrometry. (L2 OR L3) e. Desenvolvimento de métodos envolvendo especiação química. (L3 OR L4 OR L5)
Maria Isabel Felisberti	L1. Polymers	a. Polymer Synthesis. (L1) b. Multicomponent Polymeric Materials: Blends and Composites. (L1) c. Physical Chemistry of Polymeric Solutions. (L1)
Mateus Borba Cardoso	L1. Chemistry of Materials L2. Biological Chemistry	a. Synthesis of nanoparticles for biomedical applications. (L1) b. Mechanism of interaction between nanoparticles and cells or microorganisms. (L2)
Miguel Angel San Miguel Barrera	L1. Theoretical and Computational Chemistry	a. Computational studies of atomistic processes supported on solid surfaces. (L1)
Munir Salomão Skaf	L1. Theoretical and Computational Chemistry	a. Molecular Dynamics of Nuclear Receptors and Supporting Proteins. (L1) b. Molecular Dynamics of Cellulases and Related Proteins for Sugarcane Cellulose Saccharification. (L1) c. Molecular Dynamics of Carbon Nanomaterials. (L1)
Nelson Henrique Morgon	L1. Theoretical and Computational Chemistry	a. Model Development for Calculating Thermochemical Properties. (L1) b. Studies on Fluids for Drilling Completion of Oil Wells Based on Polymeric Solutions of Giant Micelles. (L1)
Oswaldo Luiz Alves	L1. Chemistry of Materials L2. Spectroscopy	a. Purification, Functionalization and Effects of Carbon Nanostructures on Biosystems. (L1) b. Development of new bacterial agents based on silver nanoparticles. (L1) c. Synthesis, characterization and applications of graphene and derivatives. (L1) d. Mesoporous silica nanoparticles with drug-delivery properties. (L1) e. Inorganic nanotubes: fabrication, characterization and obtaining of nanocomposites with polymeric matrices. (L1)
Pablo Sebastián Fernández	L1. Electrochemistry	a. Electrochemical energy conversion and storage. (L1) b. Fundamental studies of metal deposition. (L1)
Paulo Cesar Muniz de Lacerda Miranda	L1. Natural products L2. Organic Synthesis L3. Medicinal Chemistry L4. Organic Geochemistry	a. Chemical ecology of leaf-cutting ants. (L4) b. Rational planning and synthesis of functional organic materials. (L2) c. Synthesis of natural products with outstanding biological activity. (L2) d. Rational planning and synthesis of enzyme ligands. (L3) e. Synthesis and characterization of geological biomarkers. (L4)
Paulo Cesar de Sousa Filho	L1. Nanomaterials and Nanostructures L2. Spectroscopy L3. Chemistry of Materials	a. Preparation of inorganic nanoparticles in liquid phase through synthesis in colloidal templates. (L1) b. Spectroscopic properties of rare earth nanostructured luminophores and correlation with their structural properties. (L2) c. Application of luminescent nanomaterials in the development of multimodal optical sensors. (L2 OR L3)
Paulo de Tarso Vieira e Rosa	L1. Classical and Continuous Medium Thermodynamics L2. Separations	a. Extraction of Natural Products Using Supercritical CO <sub>2</sub> as Solvent. (L2) b. Study of Asphaltene Precipitation in Petroleum. (L1)
Paulo José Samenho Moran	L1. Bioorganic L2. Organic Synthesis L3. Biotechnology	a. Bioreduction of chloramphenicol precursor carbonyl compounds. (L1) b. Enantioselective and chemo-enzymatic syntheses of antileishmanial neolignan analogues. (L1) c. Chemo-enzymatic synthesis of intermediates used in the preparation of some HIV protease inhibitors. (L2)

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Pedro Antonio Muniz Vazquez	L1. Theoretical and Computational Chemistry L2. Vibrational Spectroscopy	a. Ab-initio calculation of dynamic polarizabilities and Raman activities in gas phase. (L1) b. Development of sets of polarized valence bases for optimized pseudo-potentials for the calculation of electrical properties. (L1) c. Efficient methodologies and strategies for calculating electrical and spectroscopic properties of organochlorine pesticides. (L2) d. Study of solvent models and time-dependent ab-initio methods suitable for the calculation of dynamic Raman activities and pre-resonant excitation profiles. (L2)
Pedro Faria dos Santos Filho	L1. Chemistry Teaching L2. Catalysis L3. Coordination and Bioinorganic Chemistry	a. Development and applications of animations for teaching chemistry. (L1) b. Production and application of didactic material for teaching chemistry. (L1) c. Production and application of new didactic resources for teaching chemistry. (L1)
Pedro Luiz Onório Volpe	L1. Classical and Continuous Medium Thermodynamics L2. Calorimetry and Microcalorimetry	a. Study of the local properties of binary liquid solutions of water + Polyethylene Glycols (PEGs) using excess property data and the Kirkwood-Buff theory of fluctuations. (L1) b. Calorimetric study of the interaction of sugars with phenylboronic acid in aqueous solution. (L2) c. Study of water activity in solutions of a homologous series of PEGs as a function of temperature. (L1) d. Investigation of the metabolic activity of erythrocytes from patients with sickle cell anemia with and without hydroxyurea treatment using the calorimeter chip and the segmented flow method. (L2) e. Calorimetric Study of Systems of Biological Nature. (L2)
Pedro Paulo Corbi	L1. Coordination and Bioinorganic Chemistry	a. Metal complexes of platinum(II), platinum(IV), palladium(II), gold(I) and gold(III) with amino acids and derivatives: synthesis, characterization and pharmacological applications. (L1) b. Synthesis, characterization and pharmacological applications of new Pt(II), Pd(II), Au(I) and Ag(I) complexes with bioactive ligands. (L1)
Raphael Nagao de Sousa	L1. Electrochemistry L2. Catalysis L3. Chemistry of Materials L4. Theoretical and Computational Chemistry	a. Electrocatalysis of reactions involved in energy storage and conversion devices. (L1 OR L2) b. Synthesis of micro and nanostructured materials via the self-assembly process. (L1 OR L3) c. Design and control of spatiotemporal self-assembled patterns. (L2 OR L3) d. Numerical modeling and simulations of complex reaction mechanisms. (L2 OR L4)
Regina Buffon	L1. Catalysis L2. Coordination and Bioinorganic Chemistry L3. Chemistry of Materials	a. Polymerization of $\epsilon$ -caprolactone by lanthanide complexes. (L1) b. Synthesis of palladium and ruthenium complexes based on cyclophosphazenes substituted with phosphines. Applications in C-C coupling reactions and olefin metathesis. (L1 OR L2) c. Catalytic applications of gold nanoparticles supported on carbon nanotubes. (L1) d. Synthesis of Molecularly Printed Materials. (L3)
René Alfonso Nome Silva	L1. Spectroscopy	a. Stochastic dynamics in condensed phases. (L1)
Renato Sousa Lima	L1. Analytical Instrumentation L2. Electroanalytics L3. Sample Preparation L4. Colloidal Chemistry	a. Methods for quantitative <i>point-of-use</i> chemical analysis. (L1 OR L4) b. Manufacturing of polymeric and inorganic microfluidic devices. (L1) c. Electrochemical and electrical methods for chemical analysis in microfluidics. (L1 OR L2) d. Sample preparation methods in microfluidics. (L1 OR L3)
Roberto Rittner Neto	L1. Nuclear Magnetic Resonance Spectroscopy L2. Organic Physical Chemistry	a. Theoretical-experimental study of coupling constants for determination of molecular structure. (L1) b. Estudos de equilíbrio conformacional e interações intramoleculares em aminoácidos e compostos correlacionados. (L2)
Rodrigo Antonio Cormanich	L1. Organic Physical Chemistry L2. Application of theoretical calculations to the structure of organic molecules L3. Nuclear Magnetic Resonance Spectroscopy L4. Theoretical and Computational Chemistry	a. Physical-Chemical Studies of Fluorinated Organic Compounds: Experimental and Theoretical Approaches. (L1 OR L4) b. Mechanistic investigations of organic reactions. (L1 OR L4) c. Structure, conformation and stereochemistry of organic molecules. (L1 OR L4)
Rogério Custodio	L1. Theoretical and Computational Chemistry	a. Photoelectronic Spectroscopy Calculations. (L1) b. Ab Initio Calculations of Thermodynamic Properties. (L1) c. Applications of Ab Initio Calculations in Organic Physical Chemistry. (L1) d. Infra-Red Intensities - Ab Initio Theoretical Calculations. (L1) e. Numerical Methods for Solving Quantum and Classical Problems. (L1)
Ronaldo Aloise Pilli	L1. Organic Synthesis L2. Medicinal Chemistry	a. Biological Synthesis and Evaluation of Natural and Synthetic Dihydropyranones. (L1 OR L2) b. Synthesis and biological activity of piperidine alkaloids. (L1 OR L2) c. Synthesis of Stemona Alkaloids. (L1) d. Biological activity of natural product analogues. (L2) e. Synthetic Methodologies Based on Photochemical Reactions. (L1) f. Planning and Synthesis of Bioactive Molecules Based on Biological Target Structure. (L2)
Roy Edward Bruns	L1. Theoretical and Computational Chemistry L2. Chemometrics	a. Determination and interpretation of polar tensors of infrared intensities. (L1) b. Development of chemometric methods. (L2) c. Applications of chemometric methods in quantum chemistry. (L2)

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Susanne Rath	L1. Environmental Chemistry L2. Bioanalytics L3. Separation L4. Spectroanalytics	a. Sorption and degradation of drugs in soil. (L1) b. Development of methods for drug determination in medicines and veterinary drug residues in food. (L2) c. Synthesis of molecularly imprinted polymers. (L3) d. Development of methods to be used in the control and quality of cosmetics. (L3) e. Bee pollen as an indicator of environmental contamination. (L1) f. Food additives. (L3) g. Bioactive compounds in plants. (L2) h. Contaminants of emerging concern in environmental matrices. (L1)
Taícia Pacheco Fill	L1. Natural Products L2. Biotechnology	a. Biosynthesis of microbial natural products. (L1) b. <i>Bottom-up</i> Strategies for Discovering New Natural Microbial Products. (L2) c. Discovery of new natural microbial products. (L1) d. Host-pathogen interactions. (L1)
Teresa Dib Zambom Atvars	L1. Photochemistry and Photophysics	a. Photophysics and Photochemistry applied to conjugated polymers. (L1)
Wanda Pereira Almeida	L1. Bioorganic L2. Development and Applications of Synthetic Methodologies L3. Medicinal Chemistry L4. Organic Synthesis	a. Development of drug candidates for the treatment of Alzheimer's disease. (L3) b. Development of antifungal drug candidates. (L3) c. Development of antihypertensive drug candidates. (L3) d. Development of antihypertensive drug candidates. (L3)
Watson Loh	L1. Colloidal Chemistry L2. Calorimetry and Microcalorimetry	a. Study of phase equilibrium and structural characterization of systems formed by the association of complex salts of cationic surfactants and anionic polymers. (L1) b. Cationic Surfactants. (L1) c. Colloidal Petroleum Chemistry: Heavy Oils. (L1) d. Calorimetry Applications. (L2)
Wdeson Pereira Barros	L1. Coordination and Bioinorganic Chemistry L2. Molecular Magnetism	a. Synthesis and structural and magnetic characterization of molecular systems containing oxamate, hmt and transition metals ligands. (L1) b. Synthesis and study of the properties of polynuclear complexes containing transition metals and lanthanides. (L1) c. Multifunctional molecular magnetic systems: preparation and study of magnetic, luminescent and photoreactive properties of polynuclear complexes containing transition metal ions and lanthanides. (L2)
William Reis de Araujo	L1. Electroanalytics L2. Bioanalytics	a. Development of wearable sensors for analysis directly on the human body. (L1 OR L2) b. Development of chemical sensors for environmental, clinical and forensic analysis. (L1 OR L2)