To reach 70, in full activity, respected by the academic, scientific and business communities in Brazil and abroad, as well as by the governmental agencies, as Professor Fernando Galembeck has done, is an achievement few Brazilian scientists have got to. Details are presented in the Editorial Tribute of the SBQ and the JBCS to Professor Fernando Galembeck on his 70th birthday by Aldo J. G. Zarbin, Angelo C. Pinto and Jailson B. de Andrade on page 177.
Communication

179 Synthesis of Novel Isatin-Type 5’-(4-Alkyl/Aryl-1H-1,2,3-triazoles) via 1,3-Dipolar Cycloaddition Reactions
Bianca N. M. Silva, Bárbara V. Silva, Fernando C. Silva, Daniel T. G. Gonzaga, Vitor F. Ferreira and Angelo C. Pinto

Graphical Abstract
This work describes the synthesis of a series novel isatin-type 5’-(4-alkyl/aryl-1H-1,2,3-triazoles) whose derivatives are promising candidates for the treatment of different illness, including cancer and neglected diseases, among others.

Articles

184 Stereoselective Total Synthesis of the Potent Anti-Asthmatic Compound CMI-977 (LDP-977)
Luiz Carlos Dias, Lui Strambi Farina and Marco Antonio Barbosa Ferreira

Graphical Abstract
The anti-asthmatic compound CMI-977 (LDP-977) was prepared in 9 steps from p-fluorophenol. The key steps involve a Mukaiyama oxidative cyclization, which provides the trans-THF unit, and a Seyferth-Gilbert homologation to construct the triple bond in the target molecule.

191 Metal Nanostructures with Magnetic and Biodegradable Properties for Medical Applications
Giacomo Ruggeri, Vera L. Covolan, Marco Bernabò, Li M. Li, Leonardo F. Valadares, Carlos A. P. Leite and Fernando Galembeck

Graphical Abstract
Nanoparticles are introduced in many materials composition to enhance its performance. Poly-lactic acid enclosing gold nanoparticles (AuNP), superparamagnetic iron oxide nanoparticles (SPION) and SPION@AuNP presented in this work are examples of materials with synergistic properties.

201 Structure-Based Drug Design Studies on a Series of Aldolase Inhibitors
Leonardo G. Ferreira, Ricardo N. dos Santos and Adriano D. Andricopulo

Graphical Abstract
3D QSAR models with high internal and external consistency and predictive power were integrated with molecular docking and molecular dynamics to provide insights into the structural basis for selective inhibition of the *Trypanosoma brucei* aldolase enzyme.
A Green Hunsdiecker Reaction of Cinnamic Acids
Leonardo R. Sodré, Pierre M. Esteves and Marcio C. S. de Mattos

Graphical Abstract
Safe, recyclable, easily handleable and inexpensive tribromo- and trichloroisocyanuric acids react with cinnamic acids in NaOH/H₂O/Et₂O at room temperature to produce (E)-2-halostyrenes regioselectively in 25-95% yield, through an electrophilic mechanism.

Tautomerism in Quinoxalines Derived from the 1,4-Naphthoquinone Nucleus: Acid Mediated Synthesis, X-ray Molecular Structure of 5-Chlorobenzo[f]quinoxalin-6-ol and Density Functional Theory Calculations
Javier A. G. Gomez, Mateus R. Lage, José Walkinar de M. Carneiro, Jackson A. L. C. Resende and Maria D. Vargas

Graphical Abstract
This novel benzoquinoxaline exists as the enol-imine rather than the keto-amine tautomer in the solid state and in solution. DFT calculations on the tautomers of related compounds showed that the relative stabilities are dominated by the degree of aromaticity or solvation effects.

(--)-7-Hydroxycassine: a New 2,6-Dialkylpiperidin-3-ol Alkaloid and other Constituents Isolated from Flowers and Fruits of Senna spectabilis (Fabaceae)
Cláudio Viegas Junior, Marcos Pivatto, Amanda de Rezende, Lidilhone Hamerski, Dalce Helena Siqueira Silva and Vanderlan da Silva Bolzani

Graphical Abstract
The phytochemical study of flowers and green fruits of Senna spectabilis has furnished a new 2,6-dialkylpiperidin-3-ol alkaloid, named (--)-7-hydroxycassine, along with five known chemical constituents β-sitosterol, luteolin, 3-methoxyluteolin, betulinic acid and trans-cinnamic acid, that are being reported for the first time in this species.

Theoretical Spectroscopic Study of the Conjugate Microcystin-LR-Europium Cryptate
Júlio G. Santos, José Diogo L. Dutra, Severino Alves Junior, Gilberto F. de Sá, Nivan B. da Costa Junior and Ricardo O. Freire

Graphical Abstract
Theoretical tools were used to study spectroscopic properties of the conjugate Microcystin-LR-europium cryptate. The theoretical quantum yield of luminescence (23%) suggests this luminescent system as an excellent conjugate to be used in the ELISA assay for detection by luminescence of the Microcystin-LR in water.

Time-Resolved Fluorescence Quenching Studies of Sodium Lauryl Ether Sulfate Micelles
Leidi C. Friedrich, Volnir O. Silva, Paulo F. Moreira Jr., Celizé M. Tcacenco and Frank H. Quina

Graphical Abstract
The added-salt dependent growth of sodium lauryl ether sulfate (SLES) micelles, determined by time-resolved fluorescence quenching, is distinct from that of sodium alkyl sulfate micelles, consistent with a larger headgroup size of SLES.
Distributions of Trace Metals in Sediment Cores from a Hypertrophic Reservoir in Northeast Brazil

Izaias S. Santos, Carlos A. B. Garcia, Elisangela A. Passos and Jose P. H. Alves

Graphical Abstract
The present work presents the vertical distributions of the metals Al, Cu, Co, Cr, Fe, Mn, Ni, Pb and Zn in two sediment cores from the Macela Reservoir, located in Sergipe State in Northeast Brazil.

Gas-Phase Nucleophilic Reactivity of Alkoxysilanes

Thiago C. Correra, Luciano A. Xavier and José M. Riveros

Graphical Abstract
Simple anionic nucleophiles react with alkoxysilanes in the gas-phase by formation of a hypervalent siliconate species that can undergo further elimination by different channels leading to the formation of carbanions or siloxide-type anions.

New Hybrid Material Based on Layered Double Hydroxides and Biogenic Silver Nanoparticles: Antimicrobial Activity and Cytotoxic Effect

Priscyla D. Marcato, Natália V. Parizotto, Diego Stefani T. Martínez, Amauri J. Paula, Jasmin R. Ferreira, Patrícia S. Melo, Nelson Durán and Oswaldo L. Alves

Graphical Abstract
A new hybrid material based on biogenic silver nanoparticles strongly adsorbed in layered double hydroxides (LDHs) exhibited antimicrobial activity and no cytotoxic effect on fibroblast cell cultures demonstrating to be an interesting nanobiocomposite for biomedical and cosmetic applications.

The Role of Humidity on the Lift-off of Particles in Electric Fields

Mamadou Sow, Ross Widenor, A. Rufus Akande, Kelly S. Robinson, R. Mohan Sankaran and Daniel J. Lacks

Graphical Abstract
Particles can be lifted in electric fields. It is shown that the lifting of charged hydrophobic particles is consistent with a model for insulating particles, but the lifting of hydrophilic particles is consistent with a model for insulating particles at low humidity and a model for conducting particles at high humidity.

A Fast Sonochemical Method to Prepare 1D and 3D Nanostructures of Bismuth Sulfide


Graphical Abstract
SEM (scanning electron microscopy) images of Bi$_2$S$_3$ prepared by refluxing (a-b) and sonochemical methods (c-d) show that in both cases flower-like superstructures are formed. Sonochemical method yields these flower-like superstructures with better morphological homogeneity.
285 Highly Stable Magnetite Modified with Chitosan, Ferrocene and Enzyme for Application in Magneto-Switchable Bioelectrocatalysis
Antonio F. A. A. Melo, Roberto A. S. Luz, Rodrigo M. Iost, Iseli L. Nantes and Frank N. Crespilho

Graphical Abstract
An advance in the magnetic control of bioelectrochemical reactions, by construction of a system containing simultaneously a magnetic particle (for controlled driving), an enzyme (for biocatalysis) and a redox mediator (for mediation of electron transfer) is reported.

295 Cellulose Dissolution in an Alkali Based Solvent: Influence of Additives and Pretreatments
Martin Kihlman, Bruno F. Medronho, Anabela L. Romano, Ulf Germgård and Bjorn Lindman

Graphical Abstract
The graphical abstract shows that mixing cellulose pulp with a solvent composed by NaOH/H\textsubscript{2}O and some additives such as surfactant molecules and/or salts it is possible to obtain a nice and clear solution without undissolved material as seen by the inserted optical micrograph.

304 Superabsorbent Hydrogel Composite with Minerals Aimed at Water Sustainability
Antônio Sávio G. Magalhães, Manuel P. Almeida Neto, Maslândia N. Bezerra and Judith P. A. Feitosa

Graphical Abstract
The hydrogel absorbs and retains a huge amount of water. When applied to soil it increases the water-holding and/or nutrient retention capacity, and improves plant growth. An efficient use of water is promoted contributing to water sustainability.

314 Turning Used Frying Oil into a New Raw Material to Printing Inks
Vinícius M. Mello, Gustavo V. Oliveira and Paulo A. Z. Suarez

Graphical Abstract
Used frying oil has produced biobased resins, which were successfully employed as binder in printing ink (offset or typographic printers) formulations.

320 \textsuperscript{13}C NMR and EPR Spectroscopic Evaluation of Oil Shale Mined Soil Recuperation

Graphical Abstract
2D Hetero-spectral \textsuperscript{13}C nuclear magnetic resonance (NMR) and electron paramagnetic resonance (EPR) (\Delta B = 80 mT, g ca. 2, s derivative mode) correlation spectrum of the studied mined and natural soil samples. The data suggest uronic acid interacting with the hard acid metal ion VO\textsuperscript{2+}, and not catechol or salicylic acid structures as is pointed normally for the complexation of hard acid metal ion with natural organic matter (NOM).
327  **Coproccipitation of Safrole Oxide with Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) in Supercritical Carbon Dioxide**  
Ernandes T. Tenório-Neto, Expedito L. Silva, Thelma S. Pacheco Cellet, Elisangela P. Silva, Elton Franceschi, Lúcio C. Filho, Adley F. Rubira and Marcos H. Kunita

**Graphical Abstract**  
Safrole Oxide (SO) and poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV) microparticles were obtained using solution enhanced dispersion by supercritical fluid (SEDS). Different shapes were observed for coprecipitated SO/PHBV, and were dependent on the experimental-processing conditions.

336  **Hosted Formation of PbS Crystals on Polyethylene Modified Surface**  
Vanessa H. Fragal, Rafael Silva, Thelma P. Cellet, Guilherme M. Pereira, Marcos H. Kunita, Edvani C. Muniz and Adley F. Rubira

**Graphical Abstract**  
This work describes an approach to the growth of lead sulfide (PbS) micro and nanocrystals in poly(acrylic acid) (PAA) ultrathin film. The morphology of the composite formed can be adjusted by controlling the Pb²⁺ and thioacetamide (TAA) concentrations and the pH value of the TAA solution.

344  **Effect of Iron Content on the Catalytic Properties of Activated Carbon-Supported Magnetite Derived from Biomass**  
Sirlene B. Lima, Sarah Maria S. Borges, Maria do Carmo Rangel and Sergio G. Marchetti

**Graphical Abstract**  
During the preparation of the activated carbon-supported magnetite from coconut shells, iron nitrate fills the pores where it is converted to hematite upon heating under air flow. At 450 °C, carbon monoxide is produced and then reduces the hematite to produce magnetite particles with a hematite core.

355  **Extraction and Evaluation of Fatty Acid Composition of *Orbignya phalerata* Martius Oils (Arecaceae) from Maranhão State, Brazil**  
Débora S. Santos, Ilna G. da Silva, Bruno Q. Araújo, Cícero A. Lopes Júnior, Nayana B. N. Monção, Antônia M. das G. L. Ciú, Mércia H. S. L. de Souza, Maria do D. S. B. Nascimento and Maria Célia Pires Costa

**Graphical Abstract**  
Babassu nuts, *Orbignya phalerata* Martius (Arecaceae), were collected from different regions of Maranhão State, Brazil. The extracted babassu oils were analyzed by gas chromatography-mass spectrometry (GC-MS) after derivatization and the relative composition of the fatty acids was used to perform a discriminating analysis of the biodiversity of *O. phalerata* from Maranhão.