

Candidate application to the ISGS Board of Directors

Prof./Dr. PAROLA Stephane

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CV with main research interests (no longer than 1/2 page)

Prof. Parola is director of the Chemistry lab at the "Ecole Normale Supérieure de Lyon" (120 researchers). He received a PhD European Label from the University of Nice Sophia-Antipolis and Chalmers University of Technology where he spent 3 years working on molecular precursors for ceramics by the sol-gel process. His main research areas are in the fields of molecular precursors of materials, design of ligands, sol-gel science, chemistry of Inorganic and Hybrid Organic/Inorganic materials, colloids, powders, thin films and monoliths, nanomaterials, properties of materials (optics, photonics, photocatalysis). He is involved in projects dealing with hybrid interfaces with applications for optical devices (optical limiting monolithic materials, filters), environment (hybrid coatings and plasmonic nanostructures for (photo)catalysis, nanostructured electrodes for batteries) or medicine.

During his carrier he reported achievements on sol-gel materials for optics, nanomaterials, plasmonics (single particles, glasses, films). He has participated to the University councils (Scientific, Faculty, IUT Chemistry), as vice-director of the Chemistry-Biochemistry Faculty, or as head of International Office in Chemistry. He participates to national (CNU33, HCERES, ANR) or international (Swedish Research Council, ARACIS, ESF, ETH, Swiss National Science Foundation, The Istituto Toscano Tumori (ITT), OSF..) research evaluation organisms. He has been supervisor of 18 PhD students. He is member of several steering committees and scientific councils. He reported over 115 publications, 4 chapters, 18 patents with several transfers to industry. One spin-off company was created in 2013 on his patent (MATHYM, <http://www.mathym.com/>), now member of the Baikowski group. He gave about 80 conferences (more than 40 upon invitation). He was involved as PI and coordinator in several regional, national (ANR, FUI, DGA) or international (EUFP7, EUH2020, Swedish Defence Research, US Air Force Research..) projects.

5 representative publications

Optical Properties of Hybrid Organic-Inorganic Materials and their Applications, S. Parola, B. Julian-Lopez, L. D. Carlos, C. Sanchez, **Adv. Funct. Mater.** 2016, 26 (36), 6506-6544

Long Distance Enhancement of Nonlinear Optical Properties Using Low Concentration of Plasmonic Nanostructures in Dye Doped Monolithic Sol–Gel Materials, D. Chateau, A. Liotta, H. Lundén, F. Lerouge, F. Chaput, D. Krein, T. Cooper, C. Lopes, M. Lindgren, S. Parola, **Adv. Funct. Mater.**, 2016, 26 (33), 6005-6014

Mechanically stable and photocatalytically active TiO₂/SiO₂ hybrid films on flexible organic substrates, D. Gregori, I. Benchenaa, F. Chaput, S. Therias, J.L. Gardette, D. Leonard, C. Guillard, S. Parola, **J. Mater. Chem. A**, 2014, 2(47), 20096-20104

From Nanoparticle Assembly to Monolithic Aerogels of YAG, Rare Earth Fluorides, and Composites, M. Odziomek, F. Chaput, F. Lerouge, C. Dujardin, M. Sitarz, S. Karpati, S. Parola, 2018, **Chem. Mater.**, 30, 5460-5467.

3D printing and pyrolysis of optical ZrO₂ nanostructures by two-photon lithography: reduced shrinkages and crystallization mediated by nanoparticles seeds, A. Desponds, A. Banyasz, D. Chateau, A. Venier, S. Meille, G. Montagnac, J. Chevalier, C. Andraud, P. Baldeck, S. Parola, **Small**, 2021 17 (42), 2102486.

Statement of interest

I entered the field of sol-gel science in the early 90's during my Master and PhD Thesis focused on the design of molecular precursors for soft-chemistry routes to materials. From this time, I have been continuously involved in the development and promotion of materials and nanomaterials using soft-chemistry, both on the fundamental and applied aspects. I have developed interdisciplinary research at the interface with organic chemists, physicists, physicians, or industrial partners.

Regarding my involvement in the Sol-Gel community, I have regularly attended the international sol-gel conferences since my first participation in Padova in 2001. While I took strong benefits from it as participant, I decided to apply for the organization of the 2021 conference with the wish to contribute to the promotion of Sol-Gel Science and to help with the community scientific networking.

With this application to the election of the ISGS board, I intend to share my experience, for the benefits of the Sol-Gel and material science community, especially young researchers. As everybody knows, ISGS is already very active in the promotion of our research field, especially with the International Sol-Gel Conference, the ISGS awards, but also the fantastic newsletter every month, highlighting senior and junior scientists and the quality of their research, promoting women in science, scientific workshops dedicated to students, and of course the Journal of Sol-Gel Science and Technology. I would like to bring my contribution by helping the board in these time-consuming activities. In particular, we need to show how industries and the society have taken benefits for decades from the research and developments of the Sol-Gel scientists. Education is also one the essential keys for a better future. We could improve our communication towards non-scientific public (Specific action during the conferences or the workshops, online broad public lectures, invitation of children from local schools during these events for dedicated sessions and discussions...). It should also integrate ethical and environmental concerns. Innovation and future research direction driven by environment issues, energy, processes innovation, recycling, cycle of life of materials, impact on biodiversity, should be considered and broadly disseminated. Reinforcement of partnerships between the ISGS, industry and the non-scientific public is a way of improving the ISGS visibility, our research excellence as well as our societal impact.