Curriculum Vitae et Studiorum & List of Publications of:

Stefano Marchesi, Ph.D.

Workplace: Università del Piemonte Orientale "Amedeo Avogadro", Dipartimento di Scienze e Innovazione Tecnologica; Viale Teresa Michel 11, 15121-Alessandria (AL), Italy

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Gender: Male | Date of Birth: 23.08.1990 | Nationality: Italian

➢ Biography

Stefano Marchesi (S.M.) was born in Voghera (Pavia, Italy) on 23/08/1990.

He graduated with an upper secondary school/high school diploma as *Perito Industriale Capotecnico – Chimica* (vote: 82/100) from the I.T.I. G. Omar in Novara, Italy (04/07/2009).

He graduated with a bachelor's degree in *Materials Science-Chemistry* (L-27 class, vote: 108/110) from the University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria, Italy (18/04/2013).

He obtained a 1st-level Master degree in *Materials for Energy and Environment* with top mark (vote: 110/110 cum laude) from the University of Piemonte Orientale in collaboration with the Consorzio Università ed Impresa Vercelli (UNI.V.ER) in Vercelli, Italy (30/04/2014).

He worked at Nova Res s.r.l. (spin-off of University of Piemonte Orientale) in May 2014 with a coordinated and continuous collaboration contract (co.co.pro.), focusing his activities on the experimental research and development in the field of other natural sciences and engineering.

He graduated with a master's degree in *Chemical Science* (LM-54 class, vote: 110/110) from the University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria, Italy (27/10/2016).

He graduated with the title of Doctor of Philosophy (Ph.D.) in *"Chemistry & Biology"* (XXXII cycle, curriculum: *"Chemical Methodologies for New Molecules and Nanomaterials"*, SSD: CHIM/02-03 --- Chimica Fisica and Chimica Generale ed Inorganica) from the University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria, Italy (02/03/2020).

From November 2019 to August 2020 S.M. was the holder of a research scholarship under *Project SATURNO* (Scarti organici e Anidride carbonica Trasformati in carbURanti, fertilizzanti e prodotti chimici; applicazione concreta dell'ecoNOmia circolare) at the University of Piemonte Orientale - Department of

Sciences and Technological Innovation in Alessandria (Italy), focusing his research activities on the synthesis and characterization of materials with high-surface area for environmental applications.

From September 2020 to August 2021, S.M. was the holder of a research grant entitled *"Ottimizzazione della metodologia di preparazione di monoliti silicei per la rimozione di oli minerali da cellulosa e acque industriali di processi produttivi della carta"* under the project *"Utilizzo di silice mesoporosa organofunzionalizzata per la rimozione di idrocarburi di oli minerali da cellulosa e acque industriali di processi produttivi della carta"*(*) at University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy), in partnership with University of Bologna - Department of Agricultural and Food Sciences (Italy) and 4U s.r.l. (Italy). His research activity was focused on the optimization of the preparation, functionalization and physico-chemical characterization of high-surface silica monoliths for removal of hydrocarbons from cellulose and industrial waters of paper production processes.

From September 2021 to August 2022, S.M. was the holder of a research scholarship entitled "*Ottimizzazione di materiali porosi per applicazioni ambientali*" at University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy). His research activity was focused on the optimization of porous silica-based materials for environmental applications.

From August 2022 to February 2023, S.M. was the holder of a research scholarship entitled "*Sviluppo e caratterizzazione chimico-fisica di materiali porosi e lamellari per applicazioni ambientali*" at University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy). His research activity is focused on the preparation and physico-chemical characterization of functionalized porous silica-based solids (*i.e.* silica monoliths) and layered aluminosilicate (*i.e.* synthetic saponite clays) materials for environmental applications.

From March 2023, S.M. is recruited as Technologist under a 36-month fixed-term full-time contract of employment for the project "*Nord Ovest Digitale E Sostenibile (NODES) - Spoke 2: Green Technologies And Sustainable Industry*", with place of work at University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy). His activity is focused on: *i*) support to the research activities related with organic materials, inorganic materials or organic-inorganic hybrids, deriving from exploitable fraction of agro-food chain; *ii*) support to the research activities improving inorganic fillers and additives for cementitious matrices; *iii*) support to the research activities for the determination of the ability to remove environmental pollutants of the materials developed within the project; *iv*) manage the research activities equipment above; *v*) monitoring and reporting about the project.

From 2019, S.M. is also part of the *"Re-paper – re-think the process"* team, set up under the previously cited project(*) between UPO and Unibo. The team is composed by Prof. L. Marchese, Prof. C. Bisio, Prof. I. Braschi, Dr. E. Buscaroli and Dr. S. Marchesi.

Since 2013, S.M. has focused most of his studies on the synthesis of molecular organosilica compounds (silsesquioxanes and polyhedral oligomeric silsesquioxanes, called POSS), porous silicas (*i.e.* MCM-41 and derivative solids) and layered aluminosilicate materials with controlled chemical composition (synthetic saponite clays), and on their structural, morphological, spectroscopic, thermogravimetric and relaxometric characterization from a physico-chemical point-of-view, through a multidisciplinary & multi-technique approach. Large attention has been devoted to the functionalization of these systems with different entities (*i.e.* introduction of metal elements such as transition metals or lanthanides, as ions or in form of organometallic complexes…) following several synthetic methodologies, such as sol-gel, hydrothermal, intercalation and ion-exchange procedures for example, to obtain multifunctional materials of interest for several applications. Presently, S.M. is involved in the study of novel advanced hybrid materials with luminescent, paramagnetic and catalytic properties suitable for a wide range of scientific and technological applications (*i.e.* optical and paramagnetic devices, for catalysis and environmental remediation…).

➢ Main Fields of Interest & Current Issues of Research

- Advanced multifunctional organic-inorganic (hybrid) particles and materials, particularly silicas, aluminosilicates (*i.e.* clays, zeolites…), silsesquioxanes and polyhedral oligomeric silsesquioxanes (POSS) functionalized with transition metals and lanthanides, in form of ions or as organometallic complexes.
- Paramagnetic, luminescent/optical and catalytic complexes and nano-particles/materials.
- Functional materials and particles for energy and environmental purposes, such as for removal and/or destruction of toxic pollutants (*i.e.* mineral oils…), for recovery and recycle of precious transition and lanthanide metals, for development of new light-emitting devices (*i.e.* heterogeneous solid catalysts, porous and layered adsorbents, optical metal oxides…).
- Coordination chemistry.
- Synthesis and multidisciplinary & multi-technique physico-chemical characterization of different kind of multifunctional particles and materials (*i.e.* hybrid nanoparticles, porous and layered materials with catalytic, paramagnetic and luminescent features,…) by means of several instrumental techniques of scientific investigation: *i.e.* X-ray diffraction methods, IR, Raman and UV-Vis-NIR Spectroscopies, Spectrofluorimetry, Liquid- and Solid-state NMR Spectroscopy, ^{1}H-NMR Relaxometry, Scanning (SEM) and Transmission (TEM) Electron Microscopies, Thermogravimetric analyses, Elemental analyses (ICP-OES/MS, CHN), Chromatography (TLC, HPLC-MS, GC-FID/MS), Mass Spectrometry, Tensiometry…

➢ Teaching and Professional Activities in University

1. Bando Assegni Tutorato PNLS-POT (Piano Nazionale Lauree Scientifiche - Piani di Orientamento e Tutorato) a.a. 2019-2020, Attività PLS Chimica - Sede di Alessandria, corso "Chimica Generale e Inorganica" (I° Semestre).
2. Bando Assegni Attività di Tutorato a.a. 2019-2020, LT Chimica - Sede di Alessandria, corso "Laboratorio di Chimica Generale e Inorganica" (I° Semestre).
3. Bando Assegni Attività di Tutorato a.a. 2018-2019, LT Chimica - Sede di Alessandria, corso "Laboratorio di Chimica Inorganica" (II° Semestre).
4. Bando Assegni Attività di Didattica Integrativa a.a. 2018-2019, LT Scienza dei Materiali-Chimica - Sede di Vercelli, corso "Chimica dei Materiali e Laboratorio" (I° Semestre).
5. Bando Assegni Attività di Tutorato a.a. 2018-2019, LT Scienza dei Materiali-Chimica - Sede di Vercelli, corso "Chimica Generale e Laboratorio" (I° Semestre).
6. Bando Assegni Tutorato PLS (Piano Nazionale Lauree Scientifiche) a.a. 2017-2018, Attività di Supporto PN-PLS Area Scienze dei Materiali - Sede di Vercelli.
7. Bando Assegni Attività di Tutorato a.a. 2017-2018, LT Chimica - Sede di Alessandria, corso "Laboratorio di Chimica Inorganica" (II° Semestre).
8. Bando Assegni Attività di Supporto alla Didattica a.a. 2017-2018, LT Scienza dei Materiali-Chimica - Sede di Vercelli, corso "Chimica dei Materiali e Laboratorio (I° Semestre).
9. Bando Assegni Tutorato PLS (Piano Nazionale Lauree Scientifiche) a.a. 2016-2017, Attività di Supporto PN-PLS Area Chimica - Sede di Alessandria.

Since 2016, S.M. has been co-supervisor of several bachelor's and master's degree theses (≥ 18) of the *Chemistry* (L-27 class), *Materials Science* (L-27 class) and *Chemical Sciences* (LM-54 class) courses at the University of Piemonte Orientale (Alessandria and Vercelli).

- **Skills, Achievement and Awards**

  - **Native language:** Italian

    Other language(s): English

COMPREHENSION		SPEECH		WRITTEN PRODUCTION
Listening	Reading	Interaction	Oral Production	
B2	B2	B2	B2	B2

B1/B2 = intermediate user

  - **Communication skills**
    - Communication skills and presentation of results acquired through professional experience, especially in the scientific field.
    - Exhibition skills in relation to technological and scientific issues acquired at school and university, especially in the fields of chemistry and materials science.
    - Attitude to communicate clearly and precisely.

  - **Organizational and managerial skills**
    - Ability to organize work autonomously, defining priorities and taking responsibility.
    - Aptitude for teamwork and ability to co-ordinate work groups, achieved through the attendance of scientific laboratories during the school and university years and through professional experience.
    - Aptitude in planning and predisposition of work, to pursue established objectives and to respect deadlines.
    - Excellent collaborative and confrontational spirit, with predisposition to face any problems that arise.

  - **Professional skills**
    - Mastery of a wide selection of synthetic methodologies and scientific instrumentations for analyses in the fields of chemistry and materials science (*e.g.* spectroscopy, crystallography, microscopy, spectrometry, spectrofluorimetry, thermogravimetric analyses, elemental analyses, nuclear magnetic resonance and relaxometry techniques, tensiometry...), achieved at school and university and through professional experiences.
    - Skills in R&D (Research and Development) and data analysis in the fields of chemistry and materials science.
    - Ability to identify and analyse problems (*problem solving*).

  - **IT skills**
    - **ECDL (European Computer Driving Licence):**

    ECDL Certification (n° IT 898675) issued by AICA (Associazione Italiana per l'Informatica e il Calcolo Automatico) on 23/01/2006, consisting of the following exams:

    1) Concetti di base della IT (Basic concepts of IT)
    2) Uso del computer-Gestione dei file (Use of the computer-File management)
    3) Elaborazione testi (Word processing)
    4) Foglio elettronico (Spreadsheet)
    5) Database
    6) Presentazione (Presentation)

7) Reti informatiche-Internet (Computer networks-Internet)

Generic IT skills possessed: Knowledge and familiarity of different operating systems (*e.g.* Windows, GNU/Linux, Android…), various types of software (*e.g.* Microsoft Office, Google G Suite, GIMP, Internet browsers like Google Chrome, Internet Explorer and Microsoft Edge, Opera, Firefox, Safari…), several scientific software (*e.g.* ChemDraw, Avogadro, MolDraw, CCDC Mercury & enCIFer, Vesta, Gaussian, MestReNova, OPUS, OriginLab, QualX, AsiQWin, Particules, Zotero, Team Viewer…) and of some programming/markup languages (*e.g.* C#/C++ and HTML).

- **Awards**

Premio di Iscrizione e Profitto (2nd Ed.) for students enrolled in the degree courses in Chemistry, Physics, Mathematics and applications, Materials Science-Chemistry at the University of Piemonte Orientale - (ex)Faculty of Sciences M.F.N. (Matematiche, Fisiche e Naturali) (*n.b.*: now Department of Sciences and Technological Innovation) (a.a. 2010-2011).

➢ Membership of Professional Societies

S.M. is a member of the *Italian Chemical Society* (SCI), *Italian Discussion Group on Magnetic Resonance* (GIDRM), *Associazione Dottorandi e Dottori di Ricerca in Italia* (ADI), *UPO ALUMNI* (Associazione dei Laureati dell'Università del Piemonte Orientale) and *The Planetary Society*.

S.M. was also affiliated to the COST Action CA15209 "*Eurelax*" (European Network on NMR relaxometry, Working Groups WG2-Medical Applications).

➢ Congresses, Schools & Courses and Scientific Missions

Presently, S.M. participated to several national and international congresses with 5 oral presentations and 7 posters in the three years of Ph.D. and beyond, with 3 more posters and 8 more oral presentations by Prof. Chiara Bisio, Dr. Daniela Lalli and Mr. Stefano Econdi containing scientific data from Ph.D. and ongoing research activities. Additionally, 3 more oral contributions by Prof. Fabio Carniato, Prof. Chiara Bisio and Prof. Enrico Boccaleri were presented in the 2014-2016 timeframe, containing scientific data from the research activities carried out in the Bachelor's, 1st-level Master's and Master's degrees internships:

1. Accademia Nazionale dei Lincei (in presenza & online): a) *Materiali ed Economia Circolare*, 23-24/01/2023; b) *Cinetica Chimica alle Micro, Meso e Bioscale*, 27-28/03/2023.
2. *Focus Sostenibilità: Acqua, Clima e Sostenibilità – Il valore della risorsa idrica per la transizione ecologica*, Gruppo AMAG di Alessandria & Centro Interdipartimentale per la Sostenibilità UPO4Sustainability, UPO - DiSIT, 31/03/2023.
3. *NVIDIA GTC Keynote & Conference* (online), NVIDIA Corporation, 21-23/03/2023.
4. *Member Community Welcome Festival* (online), The Planetary Society, 18/03/2023.
5. *Qubits – Complexity to Clarity* (Miami Beach, USA & online), D-Wave, 17-19/01/2023.
6. *HPCQC 2022 – 5th Edition High Performance Computing and Quantum Computing* (online & in presenza), CINECA, Casalecchio di Reno (Italy), 15/12/2022.
7. *ScIC10 'Science Is Cool' - Live @ CAST22*, *A Free Virtual Unconference For Cool Teachers* (online), Science is Cool (SCOOL), 10-11/11/2022.
8. *JetBrains .NET Days + GameDev Day Online 2022* (online), JetBrains, 25-27/10/2022
9. *Microsoft Research Summit 2022* (online), Microsoft Corporation, 18-20/10/2022.
10. *26ª Conferenza Storia della Chimica RSC - History and Practice of Scientific Glassblowing From the Viewpoint of Glassblowers* (online), Gruppo di Storia RSC, Dr. Ayako Tani and John Liddell, 18/10/2022

11. *FUSION22* (Science Museum, London & online), The Fusion Cluster, 18/10/2022
12. *Keysight World: Innovate* (online), Keysight Technologies, 11-14/10/2022. 4 topics: *5G Private Networks and the Evolution to 6G*, *Building the Foundation for Quantum*, *Accelerating Development with Digital Twins and AI*, *Accelerating the Automotive Revolution*.
13. *General Aspects on Chemical Safety and Security in Laboratories*, National Research Council (Congress Centre) & Federchimica Headquarters & Lamberti SpA, Milano & Albizzate (Italy), 20-22/09/2022.
14. *XXII National Congress on Catalysis*, Riccione (Italia), 11-14/09/2022. Poster contribution by Mr. Stefano Econdi. Poster: S. Econdi, M. Guidotti, R. Psaro, A. Caselli, S. Marchesi, F. Carniato, C. Bisio. *Sulfonic acid ion-exchange resins for the catalytic oxidative abatement of chemical warfare agents simulants*.
15. *8th IWLM International Workshop on Layered & Nanostructured Materials*, Toledo (Spain), 10-13/07/2022. Oral contribution by Prof. Chiara Bisio. Oral presentation: S. Marchesi, S. Econdi, F. Carniato, M. Guidotti, L. Marchese, C. Bisio. *Synthetic clays as heterogeneous catalysts for degradation of organophosphorus chemical warfare agents simulants*.
16. *XLVIII National Congress of Physical-Chemistry*, Genova (Italy), 04-07/07/2022. Oral contribution by Prof. Chiara Bisio. Oral presentation: S. Marchesi, S. Econdi, F. Carniato, M. Guidotti, L. Marchese, C. Bisio. *Synthetic clays as heterogeneous catalysts for degradation of organophosphorus chemical warfare agents simulants*.
17. *Low-field NMR-MRI of Porous Media: Methods and Applications* (online), GIDRM DAY, 08/06/2022.
18. *2nd International Nanoscale Analytics Workshop* (Munich & online), neaspec, 18-21/05/2022
19. *CBRNE R&I (International Conference CBRNE - Research & Innovation) 5th Ed.* (Lille, France), 03-06/05/2021. Oral contribution by Stefano Econdi. Oral presentation: S. Econdi, S. Marchesi, S. Nascimbene, F. Carniato, C. Bisio, M. Guidotti. *Heterogeneous catalysts for the liquid-phase degradation of simulants of organophosphorus chemical warfare agents.*
20. *Merck Young Chemist's Symposium 2021* (blended: Rimini (Italy) & online), 22-24/11/2021.
21. *Quantum Optics Conference* (online), 26/10/2021.
22. *Convegno Nazionale di Fotochimica* (online), Gruppo Italiano di Fotochimica e dal Gruppo Interdivisionale di Fotochimica della Società Chimica Italiana (GIdF), 23-24/09/2021.
23. *SCI 2021 XXVII Congresso Nazionale della Società Chimica Italiana 'La Chimica Guida lo Sviluppo Sostenibile'* (online), 14-23/09/2021. A) Oral contribution by Stefano Econdi. Oral presentation: S. Econdi, M. Guidotti, S. Marchesi, S. Nascimbene, F. Carniato, C. Bisio. *Heterogeneous catalysts for the liquid-phase degradation of simulants of organophosphorus chemical warfare agents*; B) Oral contribution by Stefano Marchesi. Oral presentation: S. Marchesi, S. Nascimbene, M. Guidotti, F. Carniato, C. Bisio. *The NMR relaxometry as a powerful tool to study the uptake of paramagnetic ions from water by synthetic saponite clays*.
24. *IUPAC CCCE 2021 (51st IUPCA General Assembly, 48th World Chemistry Congress, 104th Canadian Chemistry Conference and Exhibition)* (online), 13-20/08/2021. Oral contribution by Stefano Econdi. Oral presentation: M. Guidotti, A. Caselli, R. Psaro, S. Econdi, C. Bisio, S. Marchesi, S. G. Germinara, E. Gargani. *Aldehyde-containing clays and zeolites: a sustainable approach in the control of olive fruit fly, Bactrocera oleae*.
25. *CBRNE R&I (International e-Conference CBRNE - Research & Innovation)* (online), 18/05/2021.
26. *Tech2Biz 2021*, Galileo Visionary District/SID (Scuola Italiana Design) & Lean Experience Factory, Padova & San Vito al Tagliamento (Italy), 11-17/04/2021.
27. *Conference on achievements and perspectives of NMR relaxometry, 5th Working Group Meeting, 5th Management Committee Meeting* (online), COST Action: CA15209 - European Network on NMR Relaxometry, 15-18/03/2021.
28. Virtual GIDRM Workshop *Metamaterials and Metasurfaces in Magnetic Resonance: From Theory to Applications* (online), 30/11/2020.
29. *ScIC4 'Science Is Cool' Virtual Unconference* (online), Science is Cool (SCOOL), 24/10/2020.
30. *XLVII Congresso della Divisione di Chimica Inorganica della Società Chimica Italiana*, Bari (Italy), 09-12/09/2019. Oral contribution by Dr. Daniela Lalli. Oral presentation: D. Lalli, S. Marchesi, F. Carniato, C. Bisio, L. Tei, L.

Marchese, M. Botta. *Synthesis and characterization of saponite clays intercalated with paramagnetic chelates*.

31. *Chemistry Meets Industry and Society: A Creative Showcase Conference*, Salerno (Italy), 28-30/08/2019. Oral presentation: S. Marchesi, E. L. Appiani, F. Carniato, M. Guidotti, C. Bisio. *Bi-functional Eu(III) and Nb(V)-containing Saponite Clays for the Optical Detection and Catalytic Abatement of Chemical Warfare Agents*. Poster: S. Marchesi, F. Carniato, M. Botta, L. Marchese, M. Guidotti, C. Bisio. *Extraction of Lanthanide Ions from Aqueous Solutions with Synthetic Saponite Clays*.
32. *20th Internationl Symposium on Intercalation Compounds*, Campinas (Brasil), 02-06/06/2019. Oral and poster contributions by Prof. Chiara Bisio. Oral presentation: "S. Marchesi, F. Carniato, G. Gatti, M. Botta, L. Marchese, M. Guidotti, C. Bisio. *Extraction of Lanthanide Ions from Aqueous Solutions with Synthetic Saponite Clays"*. Poster: S. Marchesi, F. Carniato, M. Botta, L. Marchese, C. Bisio. *Development of Novel Functionalized Synthetic Saponite Clays containing Ln(III) Ions*.
33. *Standing at the Crossroads: 40 Years of MR Contrast Agents*, Campus Plaine de Nimy-Centre Vésale-La Fontaine in Mons/Bergen (Belgium), 09-10/05/2019. Poster: S. Marchesi, F. Carniato, C. Bisio, L. Marchese, M. Botta. *Relaxometric properties of saponites bearing Ln^{3+} ions in the inorganic framework*.
34. *2nd Workshop of Nuclear Magnetic Resonance Relaxometry + 3rd Working Group Meeting,* Prague (Czech Republic), 04-07/02/2019. Poster: S. Marchesi, F. Carniato, C. Bisio, L. Marchese, M. Botta. *Relaxometric properties of saponites bearing Ln^{3+} ions in the inorganic framework.*
35. *Merck-Elsevier Young Chemist Symposium 2018*, Rimini (Italy), 19-21/11/2018. Flash presentation + Poster: S. Marchesi, F. Carniato, M. Guidotti, C. Bisio. *Sequestration of Lanthanide Ions from Aqueous Solutions with Synthetic Saponite Clays*.
36. *7th International Workshop on Layered Materials*, Kraków-Tomaszowice (Poland), 09-13/09/2018. Oral and poster contributions by Prof. Chiara Bisio. Oral presentation: S. Marchesi, F. Carniato, M. Botta, L. Marchese, C. Bisio. *On the physico-chemical properties of a novel class of saponite clays containing lanthanide ions in framework position*. Poster: *Extraction of Lanthanides from Aqueous Solutions with Saponite Clays*.
37. *Advanced Inorganic Materials: Green and Unconventional Synthesis Approaches and Functional Assessment*, Padova (Italy), 05-07/09/2018. Oral presentation: S. Marchesi, F. Carniato, C. Bisio, M. Botta, L. Marchese. *On the physico-chemical properties of a novel class of saponite clays containing lanthanide ions in framework position*.
38. *Giornate Italo-Francesi di Chimica 2018*, Genova (Italy), 16-18/04/2018. Poster: S. Marchesi, F. Carniato, C. Bisio. *Extraction of Lanthanides from Aqueous Solutions with Saponite Clays*.
39. *Conference on NMR Relaxometry and Related Methods*, Torino (Italy), 29-31/01/2018. Oral presentation: S. Marchesi, F. Carniato, C. Bisio, L. Tei, L. Marchese, M. Botta. *^{1}H NMR relaxometric study of novel optical/paramagnetic layered saponite functionalized with Gd(III) and Eu(III) metal ions*.
40. *XLVI National Congress on Magnetic Resonance (GIDRM),* Fisciano (Salerno, Italy), 26-29/09/ 2017. Poster: S. Marchesi, F. Carniato, C. Bisio, L. Tei, M. Botta, L. Marchese. *^{1}H NMR Relaxometric Study of The Intercalation of Gd(III) Complexes into Synthetic Saponites*.
41. *International Symposium on Intercalation Compounds - ISIC19*, Assisi (Perugia, Italy), 28/05-01/06/2017. Poster: S. Marchesi, F. Carniato, C. Bisio, L. Tei, M. Botta, L. Marchese. *Development of Oxidic Materials with Paramagnetic Properties based on Synthetic Saponites and Gadolinium Complexes*.
42. *XLIV Congresso Nazionale di Chimica Inorganica*, Padova (Italy), 14-17/09/2016. Oral contribution by Dr. Fabio Carniato. Oral presentation: F. Carniato, C. Bisio, S. Marchesi, L .Tei, L. Marchese and M. Botta. *Intercalation of gadolinium chelates into synthetic saponite: a new strategy to prepare paramagnetic cationic clays*.
43. *VI International Workshop on Layered Materials*, Kutná Hora (Czech Republic), 5-9/09/2016. Oral contribution by Dr. Chiara Bisio. Oral presentation: S. Marchesi, F. Carniato, L .Tei, C. Bisio, L. Marchese and M. Botta. *Intercalation of Gd(III) chelates into synthetic saponite: a new strategy to prepare paramagnetic cationic clays*.
44. *IX Workshop Italiano Sol-Gel*, Parma (Italy) 17-18/06/2014. Oral contribution by Prof. Enrico Boccaleri. Oral presentation: F. Carniato, E. Boccaleri, S. Marchesi. *Metal-containing POSS as multifunctional nanostructured*

hybrid materials.

Presently, S.M. participated to several national and international scientific schools and courses, particularly in the three years of Ph.D. (a.y. 2016-2019) and beyond:

1. *Google Digital Training* courses (online), Google LLC, 2022-*ongoing*.
2. *Multidisciplinary CAS SciFinder*^{n} *Training Online Sessions* (online), CAS (a division of American Chemical Society), 18/10/2022-03/11/2022. 7 topics: a) *Green Synthesis*; b) *Agro and Food*; c) *Energy Storage and Conductive Materials*; d) *Nanoparticles*; e) *Membranes*; f) *Paints, Pigments and Coatings*; g) *Novità su CAS SciFinder-n Q3.*
3. IBM *Summer Camp SkillsBuild 2.0* (online), International Business Machines Corporation (IBM), 25/08/2022-29/09/2022. 6 topics: *Quantum Computing*; *Artificial Intelligence*; *Design Thinking*; *Agile Methodology*; *Cloud Computing*; *Cybersecurity*.
4. Online Expert Course of *Space Advocacy 101*, The Planetary Society, 08/2022.
5. *Multidisciplinary CAS SciFinder*^{n} *Training Online Sessions* (online), CAS (a division of American Chemical Society), 19/05/2022-02/06/2022. 2 topics: *Physics*; *Materials*.
6. *CHESS 2022 - Conventional And High-Energy Spectroscopies For Inorganic, Organic And Biomolecular Surfaces And Interfaces* (online), 21-25/02/2022.
7. Online Training course in *UPO Risponde – Nuove Modalità di Comunicazione*, University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy), 05/2021.
8. *International School of Chemistry "Chemistry for Everyday Life"* (online), Camerino (Italy), 01-06/09/2020.
9. Online Expert Course of *Asteroid Defense 101*, The Planetary Society, 08/2020.
10. Online Training course in *COVID-19 - prevenzione e news*, University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy), 05/2020.
11. Training course in *Formazione Tutor*, University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy), 10/2019.
12. *VIII Ciamician Photochemistry School, From Fundamentals to Applications*, Bologna (Italy), 10-14/06/2019.
13. *GIDRM Scuola Nazionale di Risonanza Magnetica Nucleare -Corso Avanzato*, Torino (Italy), 09-13/07/2018.
14. *GIDRM Scuola Nazionale di Risonanza Magnetica Nucleare -Corso Base*, Torino (Italy), 10-14/07/2017.
15. Massive Open Online Course (MOOC) in *Nuclear Magnetic Resonance (NMR), a Compass to Nanoworld*, University of Lille and the CNRS (France)**,** 20/02-17/04/2017.
16. Ph.D. courses at University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria, Italy (2019): 1) *Gas adsorption in nanoporous materials: experimental and theoretical techniques, applications*, 1 CFU, 02/2019; 2) *Introduction to Molecular Imaging Techniques*, 1 CFU, 02/2019; 3) *Advanced Microscopy for nano- and bio-technologies*, Dr.ssa Ivana Miletto, 1.5 CFU, 04-05/2019 and 04-05/2018.
17. Training Course in *Formazione Specifica in Tema di Sicurezza nei Laboratori Chimici e Biologici*, University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria, (Italy), 05/2016.
18. Training Course in *Sicurezza e Salute nei Luoghi di Lavoro - Formazione Generale*, University of Piemonte Orientale - Department of Sciences and Technological Innovation in Alessandria (Italy), 05/2016.
19. Course of Excellence 'CineForum Sportivo', I.T.I. G. Omar in Novara, Italy (a.s. 2006-2007).
20. Course of ECDL, I.T.I. "G. Omar" in Novara, Italy (2005-2006).
21. Course of Primo Soccorso per Alunni Scuola Media Inferiore (a.s. 2002-2003).
22. Course of Scherma Scuola (2000).

Presently, S.M. participated in national (Italy) and foreign scientific missions in the three years of Ph.D. (a.y. 2016-2019) and beyond:

1. Reno De Medici S.p.A. - Stabilimento di Santa Giustina, Frazione Campo (Santa Giustina (Belluno), Italia), 09/08/2022-10/08/2022.
2. LUCENSE SCaRL, Traversa prima di Via della Chiesa di Sorbano del Giudice n. 231 (Lucca, Italia), 23/01/2022-29/01/2022.
3. Dipartimento di Scienze e Tecnologie Agro-Alimentari (DISTAL), Alma Mater Studiorum/Università di Bologna (Unibo) (Bologna, Italia), 29/11/2021-03/12/2021.
4. ISTM-CNR Istituto di Scienze e Tecnologie Molecolari (Via C. Golgi 19, 20133-Milano, Italy), under supervision of Dr. Matteo Guidotti, 18-22/02/2019. Title: *"Catalytic analyses on synthetic Ln(III)-saponite clays"*
5. University of Warmia and Mazury - Department of Mathematics and Computer Science (Olsztyn, Poland), Short Term Scientific Missions of COST Action CA15209 "Eurelax", under supervision of Prof. Danuta Kruk and Dr. Evrum Umut, 22-28/04/2018. Title: *High field FFC NMR experiments on nanosized paramagnetic systems*.

- **Scientific Publications and Editorial Activity**

Presently, S.M. is author of 16 original publications on international scientific journals, published in *New Journal of Chemistry*, *Dalton Transaction*, *ChemPlusChem*, *RSC Advances*, *Chemistry – A European Journal*, *Inorganic Chemistry*, *Applied Sciences*, *Processes*, *IOBC-WPRS Bulletin*, *Inorganics* and *Materials*. Since 2021, S.M. peer-reviewed 17 articles for *Materials Chemistry and Physics*, *Molecules*, *Materials*, *Pharmaceutics*, *Crystals*, *Coatings* and *Sustainability* journals. From August to December 2022, S.M. participated as Guest Editor of the Special Issue *"'Advances in Green Organic Synthesis"* for MDPI *Processes*. Since March 2023, S.M. is Review Editor in the Editorial Board of Inorganic Chemistry (specialty section of *Frontiers in Chemistry*) for Frontiers Media SA.

Published Articles:

1) S. Marchesi*, I. Miletto*, C. Bisio, E. Gianotti, L. Marchese and F. Carniato, *"Eu^{3+} and Tb^{3+} @ PSQ: Dual Luminescent Polyhedral Oligomeric Polysilsesquioxanes"*, *Materials* **2022** - Special Issue *"Structural and Optical Studies of Eu^{3+} Doped Materials" (Materials Physics)*, *15(22)*, 7996-8009 (* = corresponding authors). https://doi.org/10.3390/ma15227996
2) M. Guidotti, A. Caselli, R. Psaro, S. Econdi, C. Bisio, S. Marchesi, S. G. Germinara and E. Gargani, *"Aldehyde-containing clays and zeolites: a sustainable approach in the control of olive fruit fly, Bactrocera oleae"*, *IOBC-WPRS Bulletin* **2022**, *158*, 12-13. International Organisation for Biological and Integrated Control (IOBC) - West Palaearctic Regional Section (WPRS); Working Group "Integrated Protection of Olive Crops"; Proceedings of the 9th Meeting at Lisboa (Portugal) 26-29 October, 2021; Edited by: Ana Cristina Ramos, José Alberto Pereira, Paula Baptista; **ISBN** 978-92-9067-344-6 [XVIII + 113 pp.]. https://www.iobc-wprs.org/members/shop_en.cfm?mod_Shop_detail_produkte=424
3) S. Marchesi, G. Paul, M. Guidotti, S. Econdi, C. Bisio and F. Carniato, *"Impregnation of synthetic saponites with aldehydes: a green approach in the intercalation of bioactive principles"*, *Inorganics* **2022**, *10(10)*, 159-172. https://doi.org/10.3390/inorganics10100159
4) S. Marchesi, C. Bisio and F. Carniato, *"Synthesis of novel luminescent double-decker silsesquioxanes based on partially condensed TetraSilanolPhenyl POSS and Tb^{3+}/Eu^{3+} lanthanide ions"*, *Processes* **2022** - Special Issue *"Development of Innovative Micro and Mesoporous Materials"* (*Materials Processes*), *10(4)*, 758-772. https://doi.org/10.3390/pr10040758

5) S. Marchesi*, S. Nascimbene*, M. Guidotti, C. Bisio and F. Carniato, *"Application of NMR relaxometry for the real-time monitoring of the removal of metal ions from water by synthetic clays"*, *Dalton Trans.* **2022**, *51*, 4502-4509 (* = co-first authors). https://doi.org/10.1039/D1DT04344G
6) S. Marchesi, C. Bisio and F. Carniato, *"Enhancement of the luminescence properties of Eu(III)-containing paramagnetic Gd(III)-synthetic saponite clays"*, *Appl. Sci.* **2021** - Special Issue *"Advances in Magnetic Nanomaterials and Nanostructures"* (*Nanotechnology and Applied Nanosciences*), *11(19)*, 8903-8914. https://doi.org/10.3390/app11198903
7) S. Marchesi, C. Bisio, D. Lalli, L. Marchese, C. Platas-Iglesias and F. Carniato, *"Bifunctional Paramagnetic and Luminescent Clays Obtained by Incorporation of Gd^{3+} and Eu^{3+} Ions in the Saponite Framework"*, *Inorg. Chem.* **2021**, *60*, 14, 10749-10756. https://doi.org/10.1021/acs.inorgchem.1c01455
8) S. Marchesi, M. Guidotti, L. Marchese, C. Evangelisti, F. Carniato and C. Bisio, *"Bifunctional europium(III) and niobium(V)-containing Saponite Clays for the Simultaneous Optical Detection and Catalytic Oxidative Abatement of Blister Chemical Warfare Agents"*, *Chem-Eur J.* **2021**, *27*, 4723-4730. https://doi.org/10.1002/chem.202005454
9) S. Marchesi, C. Bisio and F. Carniato, *"Novel light-emitting clays with structural Tb^{3+} and Eu^{3+} for chromate anion detection"*, *RSC Adv.* **2020**, *10*, 29765-29771. https://doi.org/10.1039/D0RA05693F
10) D. Lalli*, S. Marchesi*, F. Carniato, C. Bisio, L. Tei, L. Marchese and M. Botta, "*Combination of solid-state NMR and ^{1}H NMR relaxometry for the study of intercalated saponite clays with macrocycle derivatives of Gd(III) and Y(III)"*, *Dalton Trans.* **2020**, *49*, 6566-6571 (* = co-first authors). https://doi.org/10.1039/D0DT01125H
11) S. Marchesi, F. Carniato, M. Guidotti, M. Botta, L. Marchese and C. Bisio, *"Synthetic saponite clays as promising solids for lanthanide ion recovery"*, *New J. Chem.* **2020**, *44*, 10033-10041 (themed collection *"Sustainability from intercalation compounds"*) + **Back-Cover**. https://doi.org/10.1039/C9NJ05983K
12) S. Marchesi, C. Bisio, E. Boccaleri and F. Carniato, *"A Luminescent Polysilsesquioxane Obtained by Self-Condensation of Anionic Polyhedral Oligomeric Silsequioxanes (POSS) and Europium(III) Ions"*, *ChemPlusChem* **2020**, *85*, 176-182. https://doi.org/10.1002/cplu.201900735
13) S. Marchesi, F. Carniato, C. Bisio, L. Tei, L. Marchese and M. Botta, *"Novel paramagnetic clays obtained through intercalation of Gd^{3+}-complexes"*, *Dalton Trans.* **2018**, *47*, 7896-7904 + **Back-Cover**. https://doi.org/10.1039/C8DT00875B
14) S. Marchesi, F. Carniato, L. Marchese and E. Boccaleri, *"Luminescent Mesoporous Silica Built through Self-Assembly of Polyhedral Oligomeric Silsesquioxane and Europium(III) Ions"*, *ChemPlusChem* **2015**, *80*, 915-918. https://doi.org/10.1002/cplu.201500143
15) S. Marchesi, F. Carniato, L. Palin and E. Boccaleri, *"POSS as building-blocks for the preparation of polysilsesquioxanes through an innovative synthetic approach"*, *Dalton Trans.* **2015**, *44*, 2042-2046. https://doi.org/10.1039/C4DT02887B
16) S. Marchesi, F. Carniato and E. Boccaleri, *"Synthesis and characterisation of a novel europium(III)-containing heptaisobutyl-POSS"*, *New J. Chem.* **2014**, *38*, 2480-2485. https://doi.org/10.1039/C4NJ00157E

Reviewer Activity:

1) "Recycle and reuse light-emitting diode waste quartz sand and stone sludge as amine functional group grafted MCM-41 material", *Materials Chemistry and Physics*, 07/2021.
2) "High-frequency photon generation derived from metastable levels of Eu^{3+} in fluoride-phosphate phosphor", *Materials Chemistry and Physics*, 08/2021.
3) "Y_2O_3 doped with Eu^{3+} containing Gd^{3+}: evaluation of structural properties associated with the emission of $^5D_0 \rightarrow {}^7F_2$ transition", *Materials Chemistry and Physics*, 10/2021.

4) "Thermal, Physiochemical, and Sensing characteristics of gold nanostructures", *Materials Chemistry and Physics*, 04/2022.
5) "Photoluminescence assessment of Ba_2-xEu_xSiO_4 phosphor prepared through a solid phase reaction technique using silica nanoparticles as a precursor", *Materials Chemistry and Physics*, 05/2022.
6) "Effect of addition of Dysprosium oxide on spectroscopic properties and Judd-Ofelt analysis of lithium borosilicate glass system", *Materials Chemistry and Physics*, 06/2022.
7) "Highlighting recent crystalline engineering aspects of luminescent coordination polymers based on f-elements and ditopic aliphatic ligands", *Molecules*, 06/2022.
8) "Novel Co_5 and Ni_4 Metal Clusters and Ferromagnets by the combination of 2-Pyridyl Oximes with Polycarboxylic Ligands", *Molecules*, 07/2022.
9) "Luminescence Properties And Energy Transfer Of Eu^{3+}, Bi^{3+} Codoped Luvo4 Modified With Pluronic F-127 Films Obtained By Sol-Gel", *Materials*, 09/2022.
10) "Novel Salinomycin-based Paramagnetic Complexes - First Evaluation of Their Potential Theranostic Properties", *Pharmaceutics*, 10/2022.
11) "Spectroscopic features of the bixbyite-type yttrium scandate doped by rare-earth ions", *Crystals*, 10/2022.
12) "Lewis Acid-catalyzed 2,3-Dihydrofuran Acetal Ring-Opening Benzannulations Toward Functionalized 1-Hydroxycarbazoles", *Molecules*, 11/2022.
13) "Fine structure and the huge zero-field splitting in Ni^{2+} complexes", *Molecules*, 12/2022.
14) "Solid-to-Liquid Ratio Influenced on Adhesion Strength of Metakaolin Geopolymer Coating Paste added Photocatalyst Materials ", *Coatings*, 12/2022.
15) "An Introduction to Nuclear Industrial Archaeology", *Sustainability*, 01/2023.
16) "Improving the wettability of Cu_3P/Cu system by doping Si, Sn, and Zr elements: based on the first-principles study", *Materials*, 02/2023.
17) "Coordination-Induced the Aggregation of Carbazoles for Ultralong Room Temperature Phosphorescence and White-Light Emission", *Molecules*, 03/2023.

Guest and Review Editor (s) Activity:

1) Guest Editor for MDPI *Processes*, Special Issue *"'Advances in Green Organic Synthesis"*, starting in August 2022. https://www.mdpi.com/journal/processes/special_issues/green_organic_synthesis
2) Review Editor in the Editorial Board of Inorganic Chemistry (specialty section of *Frontiers in Chemistry*) for Frontiers Media SA, starting in March 2023.

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Alessandria, 19/04/2023

Firma

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