CURRICULUM VITAE of DR. ENRICO SASSONI

PERSONAL INFORMATION

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Bibliometric data (January 2025):

- Scopus: Documents: 88, Citations: +2550, h-index: 30
- WOS: Documents: 78, Citations: +2100, h-index: 28

CURRENT POSITION

- 04/03/2022 - present **Associate Professor**
  Dept. Civil, Chemical, Environmental and Materials Engineering (DICAM)
  University of Bologna (UNIBO), Italy

PREVIOUS POSITIONS

- 04/03/2019 - 03/03/2022 **Assistant Professor with tenure track**, DICAM-UNIBO, Italy
- 03/09/2018 - 03/03/2019 **Postdoctoral Research Associate**, DICAM-UNIBO, Italy
- 01/03/2017 - 31/08/2017 **Visiting Postdoctoral Research Associate**
  University of Göttingen, Germany (Advisor: Prof. Siegfried Siegesmund)
- 01/09/2015 - 28/02/2017 **Visiting Postdoctoral Research Associate**
  Princeton University, USA (Advisor: Prof. George W. Scherer)
- 01/09/2015 - 31/08/2018 **Marie Skłodowska-Curie Fellow**, DICAM-UNIBO, Italy
- 01/07/2013 - 30/06/2015 **Postdoctoral Research Associate**, DICAM-UNIBO, Italy
- 31/03/2011- 30/06/2013 **Postdoctoral Research Associate**, CIRI-EC- UNIBO, Italy

EDUCATION

- 2011 **PhD in Materials Engineering**, UNIBO, Italy
- 2010 **Visiting period (6 months) at Princeton University, USA**
  Supervisor: Prof. George W. Scherer
- 2007 **Master in Building Engineering/Architecture** (awarded *cum laude*), UNIBO, Italy

RESEARCH ACTIVITY

- **PUBBLICATIONS**

Dr. Sassoni is author/coauthor of **+100 scientific papers** (cf. list at the end of the CV).

- **RESEARCH TOPICS**

➢ ***Innovative consolidants and protectives for the conservation of Cultural Heritage***
Development of novel consolidants and protectives based on calcium phosphates (CaP) for stones, mortars and archaeological bones, having enhanced effectiveness, compatibility, durability and sustainability with respect to available commercial products.

➢ ***Decay mechanisms of historic building materials and predictive models***
Study of stone and mortar decay in real historic buildings, in collaboration with Authorities in charge of their conservation (e.g., Royal Palace in Versailles, FR; Cathedral of Modena, IT; Ducal Palace in Mantua, IT.; Monumental Cemetery in Bologna, IT).

➢ ***Nanostructured CaP coatings with osteointegration, antibacterial and antitumor ability for the biomedical sector***
Development and characterization of CaP-based coatings for prostheses osteointegration and antibacterial/antitumor functionalization. Use of green (marine-derived) resources for manufacturing of CaP-based coatings.

➢ ***Innovative techniques for evaluating the structural safety of historic masonries***
Study and improvement of the adhesion between masonry and fiber reinforced polymers (FRP) used for existing building rehabilitation. Development of novel moderately destructive methods for masonry strength determination.

➢ ***Sustainable materials for the building sector***
Development of novel sustainable composites, based on renewable vegetable fibers, for building thermal insulation. Development of alkali-activated materials from waste precursors (e.g. brick powder) for rehabilitation of existing masonry buildings.

- **COLLABORATIONS**

➢ Prof. George W. Scherer (Princeton University, USA)
Development of new phosphate protectives and consolidants for cultural heritage conservation

➢ Dr. Martina Lessio (University of New South Wales, Australia)
Modeling of phosphate consolidants by molecular dynamics and quantum mechanics

➢ Dr. Lucía López-Polín and Andrea Diaz (IPHES, Tarragona, Spain)
Development and characterization of phosphate consolidants for archeological bones

➢ Dr. Gabriela Graziani (Istituto Ortopedico Rizzoli, Bologna)
Deposition and characterization of nanostructured coatings for bone regeneration

➢ Dr. Martina Cappelletti and Dr. Daniele Ghezzi (Dept. Pharmacy and Biotechnology, UNIBO)
Evaluation of the antimicrobial activity of nanostructured coatings

➢ Prof. Siegfried Siegesmund (University of Göttingen, Germany)
Novel methods for arresting the bowing of thin marble slabs by phosphate treatments

➢ Dr. Véronique Vergès-Belmin (LRMH, Paris, France); Dr. Sébastien Forst, Dr. Olivier Rolland and Dr. Azzurra Palazzo (Royal Palace of Versailles, France)
Field testing of new stone consolidants in the Royal Palace of Versailles

➢ Dr. Marco Realini and Dr. Chiara Colombo (ICVBC-CNR, Milan, Italy)
Advanced techniques for characterization of stone consolidants

➢ Dr. Roberto Martorelli and Dr. Otello Sangiorgi (Cimitero Monumentale di Bologna)
Testing of new conservation treatments in real case studies

➢ Prof. Stefano Benazzi (Dept. Cultural Heritage, UNIBO), Prof. Sahra Talamo (Dept. Chemistry, UNIBO), Dr. Cosimo Posth (Eberhard Karls Univerisity of Tubingen)
Evaluation of the effects of phosphate treatments for archaeological bone conservation

- **INVITED ORAL PRESENTATIONS**
  - **KEYNOTE** – "*Life cycle assessment of stone consolidants: What functional unit should be adopted?*", 78th RILEM Week & RILEM Conference on Sustainable Materials & Structures: Meeting the major challenges of the 21st century (SMS 2024), Toulose (France), 25-28/8/20204
  - **KEYNOTE** – "*Phosphate treatments to enhance the durability of cementitious substrates*", 10th International Conference on Concrete under Severe Conditions – Environment and Loading (CONSEC2024), Chennai (India), 25-27/9/2024
  - **KEYNOTE** – "*Recent advances in consolidation of heritage stones and mortars",* International Workshop *"*CONSERVATION OF HERITAGE STRUCTURES - Connecting the past and future", IIT Bombay, Mumbai (India), 21/9/2024
  - **KEYNOTE** – "*Strengths and weaknesses of traditional and innovative products for consolidation of stones, mortars and bricks*", RILEM Spring Convention 2023 & 4th International Congress on Materials & Structural Stability, Rabat (Morocco), 08-10/3/2023
  - **KEYNOTE** – "*Ammonium phosphate for "green" conservation of cultural heritage: 10 years of research in the laboratory and in the field*", 75th RILEM week & International Conference on Advances in Sustainable Construction Materials and Structures, Merida (Mexico), 29/8/2021-3/9/2021
  - "*Marie Skłodowska-Curie Individual Fellowships: from the proposal preparation to the project implementation*", 27th Annual meeting of the European Orthopaedic Research Society (EORS2019), Maastricht (Netherlands), 4/10/2019
  - "*Calcium phosphates for the preservation of cultural heritage*", Institutul National de Cercetare, Bucharest (Romania), 6/5/2019
  - "*Phosphate-based treatments for conservation of stone*", RILEM Spring Meeting 2017, Detroit (USA), 29/3/2017

- **ORAL PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES**
  - 6th European Conference on Biodeterioration of Stone Monuments (ECBSM), Milan (Italy), 7-8/11/2024
  - 10th International Conference on Concrete under Severe Conditions – Environment and Loading (CONSEC2024), Chennai (India), 25-27/9/2024
  - 78th RILEM Annual Week & RILEM Conference on Sustainable Materials & Structures: Meeting the major challenges of the 21st century (SMS 2024), Toulouse (France), 25-30/8/2024
  - RILEM Spring Convention 2024 & conference on advanced construction materials and processes for a carbon neutral society, Milan (Italy), 10-12/4/2024
  - RILEM Spring Convention 2023 & 4th International Congress on Materials & Structural Stability, Rabat (Morocco), 08-10/3/2023
  - 75th RILEM week & International Conference on Advances in Sustainable Construction Materials and Structures, Merida (MX), 29/8/2021-3/9/2021
  - XVI Convegno Nazionale AIMAT 2021, Cagliari (IT), 15-18/9/2021
  - International Conference HERI-TECH – The Future of Heritage Science and Technologies, Florence (IT), 14/10/2020
  - 74th RILEM Annual Week & 40th Cement and Concrete Science Conference, Sheffield (UK), 30/8/2020-4/9/2020
  - 27th Annual meeting of the European Orthopaedic Research Society (EORS) 2019, Maastricht (NL), 4/10/2019
  - 5th Historic Mortars Conference (HMC2019), Pamplona (ES), 19-21/6/2019

- International Conference HERI-TECH – The Future of Heritage Science and Technologies, Florence (IT), 16-18/5/2018
- 4th International Conference on Salt Weathering of Buildings and Stone Sculptures (SWBSS2017), Potsdam (DE), 20-22/09/2017
- XIV Convegno Nazionale AIMAT, Ischia Porto (IT), 12-15/07/2017
- RILEM Spring Meeting 2017, Detroit (USA), 29-30/3/2017
- Materials Research Society Fall Meeting 2016 (MRS Fall 2016), Boston (USA), 28/11-2/12/2016
- 4th Historic Mortars Conference (HMC2016), Santorini (GR), 10-12/10/2016
- 10th International Conference on Structural Analysis of Historical Constructions (SAHC2016), Leuven (B), 13-15/9/2016
- 13th International Congress Deterioration and Conservation of Stone, Paisley (UK), 6-10/9/2016
- 3rd International Conference Salt Weathering of Buildings and Stone Sculptures (SWBSS2014), Brussels (BE), 14-16/10/2014
- XII Convegno Nazionale AIMAT, Lecce (IT), 21-24/09/2014
- Built Heritage 2013 – Monitoring Conservation Management, Milan (IT), 18-20/11/2013
- 12th International Congress Deterioration and Conservation of Stone, New York City (USA), 22-26/10/2012
- 5th International Congress on Science and Technology for the Safeguard of Cultural Heritage in the Mediterranean Basin, Istanbul (TR), 22-25/11/2011
- Jardins de Pierres – Conservation of stone in Parks, Gardens and Cemeteries, Paris (F), 22-24/6/2011
- 1st Historic Mortars Conference (HMC2010), Prague (CZ), 22-24/9/2010

- **ACTIVITY AS MEMBER OF SCIENTIFIC COMMITTEES OF INTERNATIONAL CONFERENCES**
  - 79th RILEM Annual Week & International Conference on Advances in Engineering and Technology for sustainable development (ICONS 2025), Hanoi (Vietnam), 24-29/8/2025
  - RILEM Spring Convention 2025 & Conference on durability of building materials and systems in the transportation infrastructure, Mendrisio (Switzerland), 22-28/3/2025
  - Italian Concrete Conference 2024, Florence (Italy), 19-21/6/2024
  - CHAIR of the Scientific Committee of the 78th RILEM Annual Week & RILEM Conference on Sustainable Materials & Structures: Meeting the major challenges of the 21st century (SMS 2024), Toulouse (France), 25-30/8/2024
  - RILEM Spring Convention 2024 & conference on advanced construction materials and processes for a carbon neutral society, Milan (Italy), 10-12/4/2024
  - 4th International Congress on Materials & Structural Stability, Rabat (Morocco), 6-11/3/2023
  - International Symposium CONSOLIDATION 2021, Lisbon (Portugal), 23-25/3/2022
  - 75th RILEM week & International Conference on Advances in Sustainable Construction Materials and Structures, Merida (Mexico), 29/8/2021-3/9/2021
  - 14th International Congress on Deterioration and Conservation of Stone, Göttingen (Germany), 7-12/09/2020
  - 3rd International Conference on Innovative Technologies for Clean and Sustainable Development (ITCSD2020), Chandigarh (India), 19-21/2/2020

- **ACTIVITY AS CHAIR OF SESSIONS DURING INTERNATIONAL CONFERENCES**
  - 78th RILEM Annual Week & RILEM Conference on Sustainable Materials & Structures: Meeting the major challenges of the 21st century (SMS 2024), Toulouse (France), 25-30/8/2024
  - RILEM Spring Convention 2024 & conference on advanced construction materials and processes for a carbon neutral society, Milan (Italy), 10-12/4/2024

- 77th RILEM Annual Week 2023 & 1st Interdisciplinary Symposium on Smart & Sustainable Infrastructures (ISSSI 2023), Vancouver (Canada), 4-8/9/2023
- RILEM Spring Convention 2023 & 4th International Congress on Materials & Structural Stability, Rabat (Morocco), 08-10/3/2023
- 76th RILEM Annual Week 2022 & ICRCS 2022, International Conference on Regeneration and Conservation of Structures (ICRCS 2022), Kyoto (Japan), 3-9/9/2022
- RILEM Spring Convention 2022, Paris (FR), 17/3/2022
- 75th RILEM week & International Conference on Advances in Sustainable Construction Materials and Structures, Merida (Mexico), 29/8/2021-3/9/2021
- 74th RILEM Annual Week & 40th Cement and Concrete Science Conference, Sheffield (UK), 30/8/2020-4/9/2020
- 5th Historic Mortars Conference (HMC2019), Pamplona (ES), 19-21/6/2019

- **AWARDS**
  - In 2024 Prof. Sassoni was nominated a **RILEM Fellow**
  - **"Outstanding Paper 2022 Award"** awarded by the journal "Materials and Structures" to the article "B. Lubelli, A. M. Aguilar, K. Beck, T. De Kock, J., Desarnaud, E. Franzoni, D. Gulotta, I. Ioannou, A., Kamat, B. Menendez, I. Rörig-Dalgaard & E. Sassoni, A new accelerated salt weathering test by RILEM TC 271-ASC: preliminary round robin validation. Mater Struct 55 (2022) 238"
  - "**ILUCIDARE Special Prize 2021 for excellence in heritage-led innovation**", awarded within the European Heritage Awards/Europa Nostra Awards to the "HAP4MARBLE" project for excellence in heritage-led Innovation ("The HAP4MARBLE technique is replicable and is being tested on a large scale in various locations. There has also been a positive social impact from this project with outreach being undertaken to communities and stakeholders outside of the research community").
  - "**ON-EORS Orthoregeneration Award**" during the European Orthopaedic Research Society (EORS2021, Roma, IT, 17/9/2021) for the contribution "G. Graziani, M. Sartori, M. Fini, E. Sassoni, M. Boi, S. Farè, N. Baldini, *New coatings for bone regeneration: the role of biomimetic composition and multiscale morphological cues in directing cells response*", awarded by the ON foundation to the "best paper and oral presentation on bone regeneration presented at the congress"
  - **Cover of the journal Coatings** (March 2020 issue) dedicated to the paper "Sassoni E., Franzoni E., Stefanova M., Kamenarov Z., Scopece P., Verga Falzacappa E., *Comparative study between ammonium phosphate and ethyl silicate towards conservation of prehistoric paintings in the Magura cave (Bulgaria)*, Coatings 10 (2020) 250"
  - "**Best Poster Presentation**" at BIOMAT 2019 (held in Weimar, GE, 8-9/5/2019) for the contribution "G. Graziani, M. De Carolis, M. Bianchi, E. Sassoni, M. Berni, A. Gambardella, N. Baldini, *Nanostructured bone apatite-like thin films for bone prostheses*"
  - "**Gustavo Colonnetti Medal 2017"**, awarded by RILEM (International Union of Testing and Research Laboratories for Materials and Structures) to researchers less than 35 years old, who have made "*an outstanding scientific contribution to the field of construction materials and structures*"
  - "**Marie Skłodowska-Curie Researcher 2017 in Italy"** from the Marie Curie Alumni Association
  - "**ON-EORS Orthoregeneration Award**" at the European Orthopaedic Research Society (EORS2021) congress (held in Rome, IT, 17/9/2021) for the contribution "G. Graziani, M. Sartori, M. Fini, E. Sassoni, M. Boi, S. Farè, N. Baldini, *New coatings for bone regeneration: the role of biomimetic composition and multiscale morphological cues in directing cells response*", awarded by the ON foundation to the best paper and oral presentation on bone regeneration presented at the congress
  - "**Best Poster Presentation**" at BIOMAT 2019 (held in Weimar, GE, 8-9/5/2019) for the contribution "G. Graziani, M. De Carolis, M. Bianchi, E. Sassoni, M. Berni, A. Gambardella, N. Baldini, *Nanostructured bone apatite-like thin films for bone prostheses*"
  - "**Best Paper Award**" in the "Materials Science" section at the "International Conference HERITECH – The Future of Heritage Science and Technologies" (held in Florence, IT, 16-18/5/2018) for

the contribution “Sassoni E., D'Amen E., Roveri N., Scherer G.W., Franzoni E., *Photocatalytic hydroxyapatite-titania nanocomposites for preventive conservation of marble*”

- “**Best Poster Award**” at the "13th International Congress on Deterioration and Conservation of Stone" (held in Paisley, UK, 6-10 September 2016) for the contribution "Sassoni E., Graziani G., Franzoni E., Scherer G.W., *Consolidation of sugaring marble by hydroxyapatite: some recent developments on producing and treating decayed samples*"
- “**Best Paper Award**” in the 2018 competition within the DICAM Department at the University of Bologna (Italy), for the paper “Graziani G., Sassoni E., Scherer G.W., Franzoni E., *Resistance to simulated rain of hydroxyapatite- and calcium oxalate-based coatings for protection of marble against corrosion*, Corrosion Science 127 (2017) 168–174”
- “**Best Paper Award**” in the 2016 competition within the DICAM Department at the University of Bologna (Italy), for the paper "Sassoni E., Manzi S., Motori A., Montecchi M., Canti M., *Experimental study on the physical-mechanical durability of innovative hemp-based composites for the building industry*, Energy and Buildings, 104 (2015) 316-322"
- “**Silver Poster Award**” at the "Princeton Research Day" (held at Princeton University, USA, 5/5/2016) in the category "Graduate Students/Postdoctoral Researchers" with his poster entitled "*Can the mineral constituting our teeth and bones help us preserve our monuments? The HAP4MARBLE project*"
- **The paper** "Sassoni E., Naidu S., Scherer G.W., *The use of hydroxyapatite as a new inorganic consolidant for damaged carbonate stones*, Journal of Cultural Heritage 12 (2011) 346-355" was ranked **among the most downloaded articles** published in the “Journal of Cultural Heritage” as follows”: #9 October to December 2011, #25 in the year 2011, #10 January to March 2012, #25 in the year 2012

- **FUNDED RESEARCH GRANTS**

  - 2023-2025: **PRINCIPAL INVESTIGATOR** of the project PRIN 2022 “SECURE-COATS” (Safe, eco-friendly and durable coatings to prevent deterioration of heritage stones), Funded by the Italian Ministry for University and Research, Funding 268 k€ - Topic: Innovative protective coatings for cultural heritage conservation
  - 2023-2025: **TEAM MEMBER** of the project PRIN 2022 PNRR “BIO-COATCH” (Novel sustainable BIOactive COATings to preserve metal surfaces in Cultural heritage and Healthcare), Funded by the Italian Ministry for University and Research, Funding 225 k€ - Topic: Innovative protective coatings for cultural heritage conservation and healthcare
  - 2023-2024: **TEAM MEMBER** of the project “Study on marble deterioration and conservation in Taj Mahal”, Funded by the Institute of Eminence (IOE) cell of IIT Bombay (India), Funding 10 k€ - Topic: Identification of deterioration causes in the Taj Mahal (India) and proposal of conservation strategies
  - 2021-2024: **TEAM MEMBER** of the project H2020 “HOLAHERIS” (A holistic structural analysis method for cultural heritage structures conservation), Funded by the European Commission, UNIBO funding: 269 k€ - Topic: Innovative methods for cultural heritage conservation
  - 2021-2024: **TEAM MEMBER** of the project PRIN 2020 “Manufacture of artificial aggregates by means of multi-step cold bonding pellettization of hazardous and non-hazardous wastes”, Funded by the Ministry of University and Research (Italy), Total funding: 675 k€, UNIBO funding: 101 K€ - Topic: Development of sustainable concrete using artificial aggregates from waste
  - 2019-2021: **TEAM MEMBER** of the project “MIMESIS” (Smart Materials for the Built Heritage), Funded by the Emilia Romagna region (POR-FESR funds), Total funding: 798 k€, UNIBO funding: 175 K€ - Topic: Sensors for monitoring of cultural heritage buildings
  - 2015-2018: **AWARDEE** of a Marie Skłodowska-Curie Individual Fellowship - H2020 project “HAP4MARBLE” (Multi-functionalization of hydroxyapatite for the restoration and preventive conservation of marble artworks), Funded by the European Commission, UNIBO funding: 244 k€ - Topic: Development of phosphate-based treatments for the conservation of marble Website: https://events.unibo.it/hap4marble

- **FUNDED INDUSTRIAL CONTRACTS**

  - 2021-2023: **PRINCIPAL INVESTIGATOR** of the project “Phosphate-based treatments for cementitious materials”, Funded by Saint Gobain Recherche (France), Funding: 100 k€

  - 2020-2021: **PRINCIPAL INVESTIGATOR** of the research project “Characterization of marble samples coming from the tombstone of Antonio Canova in Venice”, Funded by Ottorino Non-farmale s.r.l., Funding: 4 k€

- **FUNDED APPLICATIONS TO HOST VISITING FELLOWS**

  Reference person for the University of Bologna for a proposal to host Dr. Martina Lessio (University of New South Wales, Australia) through a fellowship funded by the **Institute for Advanced Studies (ISA)** of the University of Bologna, to spend a visiting period in Bologna to work with Dr. Sassoni

- **ACTIVITY AS REVIEWER FOR INTERNATIONAL JOURNALS**

  Langmuir (ACS); Crystal Growth & Design (ACS); ACS Applied Materials and Interfaces (ACS); New Journal of Chemistry (Royal Society of Chemistry); Materials Advances (Royal Society of Chemistry); Journal of Crystal Growth (Elsevier); Journal of Colloid and Interface Science (Elsevier); Construction and Building Materials (Elsevier); Materials and Design (Elsevier); Materials Characterization (Elsevier); Materials Letters (Elsevier); Materials Chemistry and Physics (Elsevier); Ceramics International (Elsevier); Journal of Cleaner Production (Elsevier), Vibrational Spectroscopy (Elsevier); Building and Environment (Elsevier); Energy and Buildings (Elsevier); Science of the Total Environment (Elsevier); Journal of Building Engineering (Elsevier); Journal of Cultural Heritage (Elsevier); Engineering Geology (Elsevier); Fuel (Elsevier); Measurement (Elsevier); Case Studies in Construction Materials (Elsevier); Materials and Structures (Springer); Materials (MDPI); Nanomaterials (MDPI); Minerals (MDPI); Coatings (MDPI); Applied Sciences (MDPI); Fibers (MDPI); Studies in Conservation (Taylor & Francis); International Journal of Architectural Heritage (Taylor & Francis); Applied Physics A - Materials Science & Processing (Springer); Heritage Science (Springer); Archaeological and Anthropological Sciences (Springer); Environmental Earth Sciences (Springer); Journal of Polymers and the Environment (Springer); KSCE Journal of Civil Engineering (Springer); Key Engineering Materials (Trans Tech Publications); Nondestructive Testing and Evaluation (Taylor & Francis); European Journal of Environmental and Civil Engineering (Taylor & Francis); Materials Research (Scielo), Science China Technological Sciences (Springer), SPE Journal (OnePetro)

- **ACTIVITY AS REVIEWER OF RESEARCH PROJECT PROPOSALS**

  - 2023: Czech Science Foundation, Czech Republic
  - 2023: State Education Development Agency, Latvia
  - 2022: Swiss National Science Foundation (NSF), Switzerland
  - 2022: Swiss Federal Institute of Technology Zurich (ETH), Switzerland
  - 2021: State Education Development Agency, Latvia
  - 2020: State Education Development Agency, Latvia
  - 2019: State Education Development Agency, Latvia

- **ACTIVITY AS MEMBER OF THE EDITORIAL BOARD OF SCIENTIFIC JOURNALS**

  - 2021-present: **Deputy Editor-in-Chief** of “**Materials and Structures”** (Springer)
  - 2021-present: Associate Editor of “**Frontiers in Materials”** (Frontiers)
  - 2018-present: Member of the Editorial Board of "**Coatings**" (MDPI)
  - 2017-present: Associate Editor of "**RILEM Technical Letters**" (RILEM)
  - 2021-2022: **Co-Guest Editor** of a special issue of "**Materials**" (MDPI)

- 2019-2020: **Co-Guest Editor** of a special issue of "**Frontiers in Materials**" (Frontiers)
- 2018-2020: **Co-Guest Editor** of a special issue of "**Coatings**" (MDPI)

- **INSTITUTIONAL ACTIVITY WITHIN SCIENTIFIC SOCIETIES**
  - From 2021 to 2023, **Chair of the RILEM "Technical Activities Committee" (TAC)**, which has the function of monitoring and coordinating the activity of the Technical Committees (TCs) operating in RILEM, approving the creation of new TCs and approving proposals for workshops, conferences and other events co-sponsored by RILEM
  - From 2021 to 2023, **member of the RILEM "Educational Activities Committee" (EAC)**, which has the function of promoting courses and seminars for PhD students and professionals operating in the field of building materials and structures
  - From 2018 to 2021, **Convener of the RILEM Cluster E**, comprising the Technical Committees (TCs) working on "Masonry, Timber and Cultural Heritage"

- **MEMBERSHIP OF SCIENTIFIC SOCIETIES**
  - 2017-present: **RILEM** (International Union of Laboratories and Experts in Construction Materials, Systems and Structures)
  - 2014-present: **AIMAT** (Italian Association of Materials Engineering)
  - 2011-2014: **MRS** (Materials Research Society)

TEACHING ACTIVITY

- **ACADEMIC COURSES AT THE UNIVERSITY OF BOLOGNA**
  with students' opinions on the quality of the teaching activity according to institutional polls
  - 2023-2024, **Ceramics Technology and Materials Characterization** - 72 hours
    Master Degree in Chemical and Process Engineering
    - "*Does the teacher promote the interest in the discipline?"* YES:
    - *"Is the teacher clear?"* YES:
    - *"Overall are you satisfied with this course?"* YES:
  - 2023-2024, **Chemistry and Materials Technology** - 50 hours
    Bachelor Degree in Civil Engineering
    - "*Does the teacher promote the interest in the discipline?"* YES: **92.5%**
    - *"Is the teacher clear?"* YES: **100%**
    - *"Overall are you satisfied with this course?"* YES: **97.5%**
  - 2022-2023, **Ceramics Technology and Materials Characterization** - 72 hours
    Master Degree in Chemical and Process Engineering
    - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
    - *"Is the teacher clear?"* YES: **100%**
    - *"Overall are you satisfied with this course?"* YES: **100%**
  - 2022-2023, **Chemistry and Materials Technology** - 50 hours
    Bachelor Degree in Civil Engineering
    - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
    - *"Is the teacher clear?"* YES: **100%**
    - *"Overall are you satisfied with this course?"* YES: **95.5%**

- 2021-2022, **Ceramics Technology and Materials Characterization** - 36 hours
  Master Degree in Chemical and Process Engineering
  - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **100%**

- 2021-2022, **Chemistry and Materials Technology** - 50 hours
  Bachelor Degree in Civil Engineering
  - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **100%**

- 2021-2022, **Materials Technology and Applied Chemistry** - 30 hours
  Master Degree in Building Engineering-Architecture
  - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **100%**

- 2020-2021, **Chemistry and Materials Technology** - 50 hours
  Bachelor Degree in Civil Engineering
  - "*Does the teacher promote the interest in the discipline?"* YES: **96.7%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **100%**

- 2020-2021, **Materials Technology and Applied Chemistry** - 30 hours
  Master Degree in Building Engineering-Architecture
  - "*Does the teacher promote the interest in the discipline?"* YES: **96.6%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **96.6%**

- 2019-2020, **Materials Technology and Applied Chemistry** - 60 hours
  Master Degree in Building Engineering-Architecture
  - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
  - *"Is the teacher clear?"* YES: **97.6%**
  - *"Overall are you satisfied with this course?"* YES: **97.7%**

- 2018-2019, **Materials and corrosion of offshore structures and equipment** - 28 hours
  Master Degree in Offshore Engineering
  - "*Does the teacher promote the interest in the discipline?"* YES: **100%**
  - *"Is the teacher clear?"* YES: **100%**
  - *"Overall are you satisfied with this course?"* YES: **100%**

- **MENTORSHIP AT THE UNIVERSITY OF BOLOGNA**

  - ***Supervision of Postdocs***
    - 2021-2023: Supervision of the **Postdoc** Dr. Hélène Pasco
      Project: "*Investigation of phosphate-based treatments for cementitious materials*"

  - ***Supervision of Research Fellows***
    - 2024-2025: Supervision of the **Research Fellow** Luca Cocchi
      Project: "*Development and characterization of innovative phosphate coatings for preventive conservation of historic stone substrates*"
    - 2024-2025: Supervision of the **Research Fellow** Matteo Cianciavicchia

Project: "*Analysis of the antimicrobial properties of innovative phosphate coatings for the conservation of historic stone substrates"*

- ***Supervision of PhD candidates***
  - 2024-2027: Supervision of the **PhD student** Binbin Du
    Project: "*Nanostructured coatings to control microbial deterioration of stone cultural heritage*""
  - 2022-2024: Supervision of the **PhD student** Alessio Gabrielli
    Project: "*Study of an antimicrobial and water-repellent protective treatments for stone surfaces*"
  - 2020-2023: Supervision of the **PhD student** Greta Ugolotti
    Project: "*Phosphate treatment of contaminated substrates*"
  - 2022: Supervision of the **visiting PhD student** Anupama V.A.
    (Indian Institute of Technology Madras – IIT Madras, India), Visit: September-December 2022
  - 2021: Supervision of the **visiting PhD student** Andrea Diaz
    (Catalan Institute of Human Paleoecology and Social Evolution - IPHES), Visit: April-July 2021
  - 2019: Supervision of the **visiting PhD student** Swathy Manohar
    (Indian Institute of Technology Madras – IIT Madras, India), Visit: June-July 2019
  - 2013-2015: Co-supervision of the **PhD student** Gabriela Graziani
    Project: "*New phosphate-based treatments for carbonate stone consolidation and protection*"

- ***Co-supervision of PhD candidates at international universities***
  - 2023-2026: External co-supervisor of the **PhD candidate at ETH Zurich** Tennenini Camilla
    Project: "*To consolidate or not to consolidate? A holistic approach from laboratory studies to field practice"*

- ***Activity as external reviewer of PhD theses***
  - External reviewer of the **PhD thesis** entitled "*Microstructural consolidation of mortars' surfaces by the use of di-ammonium phosphate (DAP) as an innovative treatment in cultural heritage buildings*" by Dr. Agnieszka Katarzyna Defus, Polytechnic University of Milan, 2020
  - External reviewer of the **PhD thesis** entitled "*A study on characterisation, deterioration mechanisms and protection of bricks and stones in historic structures*" by Dr. Swathy Manohar, Indian Institute of Technology Madras (India), 2020

- ***Co-supervision of master students at the University of Bologna***
  Since 2011, co-supervision of **+25 undergraduate students** for their Master theses

- ***Co-supervision of students for internship periods at the University of Bologna***
  Since 2010, tutoring of +**15 undergraduate students** for internship periods

- **<u>INVITED LECTURES AND SEMINARS</u>**
  - "Ammonio fosfato per la conservazione dei supporti carbonatici: valutazione di durabilità e sostenibilità ambientale", within the workshop #ACTGREENER, Arezzo (Italy), 3/12/2024
  - "*La conservazione delle superfici murarie, storia e traguardi della Scienza dei Materiali*", within the Scientific School "La Scienza dei Materiali e i Beni Culturali. Conservazione e Restauro delle Superfici e delle Murature Storiche", Pula (CA), 21/9/2021
  - "*Materiali per il consolidamento delle ossa archeologiche", within the course "Bones - lo Scheletro, un Archivio Biologico" (codice 95164), Collegio Superiore – Istituto di Studi Superiore*, Università di Bologna, Bologna (IT), 22/4/2021
  - "*Stone and mortar consolidation by ammonium phosphate - 10 years of laboratory and field testing*", Politecnico di Milano, Milano (IT), 17/3/2021

- "*Ammonio fosfato per la conservazione delle matrici carbonatiche: 10 anni in laboratorio e in casi reali",* Centro Europeo Per i Mestieri Del Patrimonio, Thiene (IT), 2/10/2020
- "*Tecniche innovative per la conservazione del materiale lapideo*", within the Scientific School "Beni culturali dell'edilizia storica e moderna: nuove prospettive nel recupero e nella conservazione dei materiali", Pula (CA), 6/6/2019
- "*Ammonio fosfato: un metodo innovativo per il trattamento di supporti carbonatici*", Incontro tecnico organizzato da AN.T.A.RES s.r.l., Bologna (IT), 14/6/2019
- "*Ammonio fosfato per la conservazione delle matrici carbonatiche: 10 anni di esperienze in laboratorio e in casi reali*", Le superfici decorate dell'architettura: Interventi tra tradizione e nuove tecnologie, Trento (IT), 7/11/2019
- "*Carbonate stone conservation by calcium phosphates*", ETH, Zurich (CH), 8/5/2017
- "*Focused ion beam microscopy (FIB-SEM) provides new insights on inorganic treatments used for conservation of marble artworks*", New York Microscopical Society, Clifton (NJ), 25/2/2017
- *"Conservation of marble artworks by hydroxyapatite"*, LRMH, Paris (FR), 6/10/2016

INSTITUTIONAL ACTIVITY AND THIRD MISSION

- **INSTITUTIONAL ACTIVITY AT THE UNIVERSITY OF BOLOGNA**
  - In 2019, Dr. Sassoni took part in the initiative "Opportunità di finanziamento per la carriera dei ricercatori e per l'attrazione di talenti nei Dipartimenti dell'Ateneo: le azioni Marie Skłodowska-Curie IF e ITN di H2020", held on 18/4/2019. The initiative, organized by the office of the University of Bologna dedicated to **Marie Skłodowska-Curie Actions**, was aimed at presenting these actions to postdocs and researchers thanks to presentations and interaction with Marie Skłodowska-Curie Alumni.
  - Since 2020, Dr. Sassoni has been appointed as **delegate of the University of Bologna** within the General Council of the **RILEM association** ("International Union of Testing and Research Laboratories for Materials and Structures")
  - In 2020, Dr. Sassoni took part in the organization of the event "**DidaDAY@DICAM**", held on 11/2/2020. The event, open to professors, researchers and students, was aimed at presenting and discussing teaching and marking experiences within the DICAM Department, as well as illustrating innovative methodologies and "Best Practices" by part of external experts
  - In 2021, Dr. Sassoni served as testimonial for the campaign "**5x1000**", aimed at raising funds to support research. He was featured in a video illustrating the effects of air pollution onto cultural heritage and stressing the importance of research on innovative materials and technologies for heritage conservation (https://site.unibo.it/5x1000/it/progetti-ricerche-sostenibilita/inquinamento-aria)
  - Since 2021, Dr. Sassoni is member of the "**Third Mission Committee**" of the DICAM Department. The Committee has the goal of promoting the research and teaching activities carried out at DICAM, favoring communication among researchers within the Department and enhancing the Department's visibility. The Committee is also in charge of organizing the biannual "DICAM Works" event, aimed at gathering professors, researchers, students and industry for a mutual transfer of knowledge.
  - Since 2023, **contact person** for the Curriculum 4 "Materials Engineering and Industrial Biotechnology" within the PhD course "**PhD@DICAM** – PhD in Civil, Chemical, Environmental and Materials Engineering"

- **INVITED PARTICIPATION IN INTERNATIONAL OUTREACH EVENTS**
  - "*Science is Wonder-ful!* - European Researchers' Night", Brussels (BE), 25-26/9/2018
  - "ECSITE 2018" - International Annual Conference of the European Network of Science Centres and Museums, Geneva (CH), 7-9/6/2018
  - "European *Commission Open Doors*", Brussels (BE), 5/5/2018

- **PARTICIPATION IN OUTREACH EVENTS**

  - In 2021, Dr. Sassoni was asked to take part in the **"5 x 1000" fund raising campaign** at the University of Bologna. He explained the threats to our Cultural Heritage and the possible solutions offered by his ongoing research through a brief video for the general public.
  - On 25-26/09/2018, Dr. Sassoni was invited by the European Commission to take part in the initiative "**Science is Wonder-ful!**" at the Parlamentarium in Brussels (B), within the "European Researchers' Night" event. He presented his Marie Skłodowska-Curie project to the general public, mostly little school children. Thanks to hands-on-experiments on real decayed marble, the children were made more aware of the importance of our cultural heritage, the risks it is subjected to and the new conservation opportunities developed within the HAP4MARBLE project.
  - On 7-9/6/2018, Dr. Sassoni was invited by the European Commission to take part in the International Conference "**ECSITE 2018**" (the annual meeting of the European network of science centres and museums) in Geneva (CH). Along with 3 other Marie Skłodowska-Curie Fellows, Dr. Sassoni presented his own research work and the Marie Skłodowska-Curie Actions to about 1200 science communicators attending the ECSITE conference.
  - On 5/5/2018, Dr. Sassoni was invited by the European Commission to take part in the event "**European Commission Open Doors**" in Brussels (BE). The event, attended by 12'000 people, was aimed at making the general public (families and children) more aware of the European programs funding public research (e.g., through the Marie Skłodowska-Curie Actions) and the resulting benefits for the society. On this occasion, Dr. Sassoni also took part in a "mini citizen's dialogue" coordinated by Dr. Sophie Beernaerts (Head of Unit, DG Education, Youth, Sport and Culture).
  - On 29/9/2017 and 30/9/2016, Dr. Sassoni took part in the EU-funded event "***European Researchers' Night***" in Bologna (IT), by organizing the initiative "*A water drop hollows a stone… or not? New strategies for the conservation of decayed historical marbles thanks to the mineral constituting our teeth and bones"*. He guided groups of ~30 people through the Monumental Cemetery in Bologna, showing cases of decayed marbles and explaining through on site demonstrations how the new hydroxyapatite-treatment developed within the HAP4MARBLE project works.
  - On 5/5/2016, Dr. Sassoni took part in the event "***Princeton Research day***" at Princeton University (USA). He explained his work to the general public by presenting a poster entitled "*Can the mineral constituting our teeth and bones help us preserve our monuments? The HAP4MARBLE project*". The poster won the "**Silver Poster Award**".
  - In 2017, an image entitled "**Protection from the elements**" by Dr. Sassoni and Prof. George W. Scherer was selected for exhibition at the annual Princeton "**Art of Science**" event. The image was also selected for publication in a number of the magazine "**Princeton Alumni Weekly**" dedicated to the Art of Science exhibition.
  - In 2010, an image entitled "**Forest of Apatite**" by Dr. Sassoni and Dr. Sonia Naidu was selected for exhibition at the annual Princeton "**Art of Science**" event. In 2012, the same image was selected among more than 250 images from previous contest editions for being shown during the initiative "**Art of Science Travelling Exhibition**".

NON-ACADEMIC FACT

In 2014, Dr. Sassoni **discovered** in Crete (Greece) **5 underwater ancient amphorae**, for which he received a reward from the Greek Ministry of Culture. The Ministry experts attributed four amphorae to the **Roman era** (III cent.) and one to the **Byzantine era** (IV cent.).

LIST OF PUBLICATIONS

Articles in international journals with peer-review (* = Corresponding Author)

[1] Gabrielli A., Ugolotti G., Masi G., **Sassoni E.***, Resistance of consolidated lime mortars to freeze–thaw and salt crystallization cycles by different accelerated durability tests, Materials and Structures (2024) 57:70, https://doi.org/10.1617/s11527-024-02361-7

[2] Dal Pozzo A., Masi G., **Sassoni E.***, Tugnoli A., Life cycle assessment of stone consolidants for conservation of cultural heritage, Building and Environment 249 (2024) 111153, DOI:10.1016/j.buildenv.2023.111153

[3] Graziani G., Ghezzi D., Boi M., Baldini N., **Sassoni E.**, Cappelletti M., Fedrizzi G., Maglio M., Salamanna F., Tschon M., Martini L., Zaffagnini S., Ionized jet deposition of silver nanostructured coatings: Assessment of chemico-physical and biological behavior for application in orthopedics, Biomaterials Advances 159 (2024) 213815, DOI:10.1016/j.bioadv.2024.213815

[4] Graziani G., Ghezzi D., Nudelman F., **Sassoni E.**, Laidlaw F., Cappelletti M., Boi M., Borciani G., Milita S., Bianchi M., Baldini N., Falini G., A natural biogenic fluorapatite as a new biomaterial for orthopedics and dentistry: antibacterial activity of lingula seashell and its use for nanostructured biomimetic coatings, Journal of Materials Chemistry B 12 (2024) 2083-2098, DOI: 10.1039/d3tb02454g

[5] Ghezzi D., Graziani G., Cappelletti M., Fadeeva I.V., Montesissa M., **Sassoni E.**, Borciani G., Barbaro K., Boi M., Baldini N., Rau J.V., New strontium-based coatings show activity against pathogenic bacteria in spine infection, Frontiers in Bioengineering and Biotechnology 12 (2024) 1347811, DOI:10.3389/fbioe.2024.1347811

[6] Montesissa M., **Sassoni E.**, Boi M., Borciani G., Boanini E., Graziani G., Synthetic or Natural (Bio-Based) Hydroxyapatite? A Systematic Comparison between Biomimetic Nanostructured Coatings Produced by Ionized Jet Deposition, Nanomaterials 14 (2024) 1332, DOI:10.3390/nano14161332

[7] Masi G., Dal Pozzo A., Ugolotti G., Tugnoli A., **Sassoni E*.**, Choosing the consolidant for carbonate substrates: Technical performance and environmental sustainability of selected inorganic and organic products, Construction and Building Materials 407 (2023) 133599, DOI:10.1016/j.conbuildmat.2023.133599

[8] Pasco H., Naidu S., Lothenbach B., **Sassoni E.***, Enhancement of surface properties of cementitious materials by phosphate treatments, Cement and Concrete Composites 141 (2023) 105124, DOI: 10.1016/j.cemconcomp.2023.105124

[9] Papasergio A.E., Ugolotti G., **Sassoni E.***, Lessio M.*, Adsorption of water and organic solvents on the calcite [1014] surface: Implications for marble conservation treatments, Applied Surface Science 616 (2023) 156438, DOI: 10.1016/j.apsusc.2023.156438

[10] Ugolotti G., **Sassoni E.***, Effect of solvents and pH on in situ formation of hydroxyapatite for stone conservation, Ceramics International, 49 (2023) 14007-14016, DOI: 10.1016/j.ceramint.2022.12.282

[11] Ghezzi D., **Sassoni E.**, Boi M., Montesissa M., Baldini N., Graziani G., Cappelletti M, Antibacterial and Antibiofilm Activity of Nanostructured Copper Films Prepared by Ionized Jet Deposition. Antibiotics 12 (2023) 55, DOI: 10.3390/antibiotics12010055

[12] Ghezzi D., Boi M., **Sassoni E.**, Valle F., Giusto E., Boanini E., Baldini N., Cappelletti M., Graziani G., Customized biofilm device for antibiofilm and antibacterial screening of newly developed nanostructured silver and zinc coatings, Journal of Biological Engineering 17 (2023) 18, DOI:10.1186/s13036-023-00326-y

[13] Lipreri M.V., Di Pompo G., Boanini E., Graziani G., **Sassoni E.**, Baldini N., Avnet S., Bone on-a-chip: a 3D dendritic network in a screening platform for osteocyte-targeted drugs, Biofabrication 15 (2023) 045019, DOI: 10.1088/1758-5090/acee23

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sessment of resistance of natural stone and fired-clay brick units against salt crystallization, Materials and Structures 56 (2023) 101, DOI:10.1617/s11527-023-02158-0

[15] Ugolotti G., Masi G., Boanini E., **Sassoni E.***, Influence of salt contamination on consolidation of slaked lime mortar by ammonium phosphate and nanolimes, Construction and Building Materials 35621 (2022) 129245, DOI: 10.1016/j.conbuildmat.2022.129245

[16] Díaz-Cortés A., Graziani G., Boi M., López-Polín L., **Sassoni E.***, Conservation of Archaeological Bones: Assessment of Innovative Phosphate Consolidants in Comparison with Paraloid B72, Nanomaterials 12 (2022) 3163, DOI: 10.3390/nano12183163

[17] Timoncini A., Costantini F., Bernardi E., Martini C., Mugnai F., Mancuso F.P., **Sassoni E.**, Ospitali F., Chiavari C., Insight on bacteria communities in outdoor bronze and marble artefacts in a changing environment, Science of the Total Environment 8501 (2022) 157804, DOI: 10.1016/j.scitotenv.2022.157804

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[19] **Sassoni E.***, Delhomme C., Forst S., Graziani G., Hénin J., Masi G., Palazzo A., Rolland O., Vergès-Belmin V. *Phosphate treatments for conservation of stone: 3-year field study in the royal palace of Versailles (France)*, Materials and Structures 54 (2021) 140, doi:10.1617/s11527-021-01717-7

[20] Masi G., **Sassoni E.***, *Air lime mortar consolidation by nanolimes and ammonium phosphate: Compatibility, effectiveness and durability*, Construction and Building Materials 299 (2021) 123999, doi:10.1016/j.conbuildmat.2021.123999

[21] Menningen J., **Sassoni E.**, Sobott R., Siegesmund S., *Constraints of the durability of inorganic and organic consolidants for marble*, Environmental Earth Sciences 80 (2021) 370, doi:10.1007/s12665-021-09664-w

[22] Bassi M., **Sassoni E.**, Franzoni E., *Experimental Study on an Innovative Biopolymeric Treatment Against Salt Deterioration of Materials in Cultural Heritage*, Frontiers in Materials 8 (2021) 583112, doi:10.3389/fmats.2021.583112

[23] Sartori M., Graziani G., **Sassoni E.**, Pagani S., Boi M., Maltarello M.C., Baldini N., Fini M., *Nanostructure and biomimetics orchestrate mesenchymal stromal cell differentiation: An in vitro bioactivity study on new coatings for orthopedic applications*, Materials Science and Engineering C 123 (2021) 112031, doi:10.1016/j.msec.2021.112031

[24] Graziani G., Barbaro K., Fadeeva I.V., Ghezzi D., Fosca M., **Sassoni E.**, Vadalà G., Cappelletti M., Valle F., Baldini N., Rau J.V., *Ionized jet deposition of antimicrobial and stem cell friendly silver-substituted tricalcium phosphate nanocoatings on titanium alloy*. Bioactive Materials (2021) doi:10.1016/j.bioactmat.2020.12.019

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[26] **Sassoni E.***, Ugolotti G., Pagani M., Nanolime, nanosilica or ammonium phosphate? Laboratory and field study on consolidation of a byzantine marble sarcophagus. Construction and Building Materials 262 (2020) 120784, doi:10.1016/j.conbuildmat.2020.120784

[27] **Sassoni E.***, Franzoni E., Stefanova M., Kamenarov Z., Scopece P., Verga Falzacappa E., *Comparative study between ammonium phosphate and ethyl silicate towards conservation of prehistoric paintings in the Magura cave (Bulgaria)*. Coatings. 10 (2020) 250, doi:10.3390/coatings10030250

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[37] **Sassoni E.***, D'Amen E., Roveri N., Scherer G.W., Franzoni E., *Durable self-cleaning coatings for architectural surfaces by incorporation of TiO_2 nano-particles into hydroxyapatite films*, Materials 11 (2018) 177, DOI: 10.3390/ma11020177

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