

Curriculum Vitae

ANDREA RUFFINI

POSITION HELD

Senior Researcher

National Research Council - Institute of Science, Technology and Sustainability for Ceramics (Faenza) - CNR-ISSMC

RESEARCH WORK EXPERIENCE

from 01/2023
01/2013 - 12/2022
01/2007 - 10/2013
12/1999 - 12/2006

Permanent contracts as Senior Researcher at CNR-ISSMC of Faenza (Italy)
Permanent contracts as Researcher at CNR-ISTEC of Faenza (Italy)
Fixed-term contract as Researcher at CNR-ISTEC of Faenza (Italy)
Collaborative research fellowship at CNR-ISTEC of Faenza (Italy)

Main Research Activities, Project and Contracts

Research on Smart Surfaces

Smart Surfaces Group, CNR-ISSMC - Institute of Science, Technology and Sustainability for Ceramics (Faenza)

2023-2025 SAFER Project "Stampaggio di componenti polimerici funzionalizzato mediante tessitura laser"; PR-FESR EMILIA ROMAGNA 2021-2027
2023-2025 ICELESS Project "Ice Control Enabled via a Low-Energy Smart System"; PRIN 2022
2025-2027 PNRR - Missione 2 Rivoluzione verde e transizione ecologica, Componente 2 "Energia rinnovabile, idrogeno, rete e mobilità sostenibile; investimento 3.5 "ricerca e sviluppo sull'idrogeno"
2023-2025 REGEOSS Project "Recovery of Geothermal Silica for Sustainable Multi-Productions"; Horizon Europe - Eurostars-3 CoD4

Research on Biomaterials for Regenerative Medicine

Bioceramics and Biohybrid Composites Group, CNR-ISTEC - Institute of Science and Technology of Ceramic Materials, Faenza (Italy)

2025-2027 UNITED "SUStainable recycliNg of fruIT pomace and substandard pulsEs towards fooD and non-food solution"; Progetto PRIN 2022
2022-2025 MERCURY "Development of multidimensional in vitro model mimicking the osteosarcoma CSCs-tumour microenvironment complexity" Bando Prin 2022 PNRR
2015-2020 Industrial Contract with GREENBONE ORTHO SRL "Development of hierarchical organized bone substitute from natural template, industrial scale-up and clinical follow-up"
2019-2022 DINAMICA Project "Development and validation of nanostructured medicated biomaterials for the treatment and regeneration of metastatic bone tissue". POR-FESR 2014-2020 Emilia Romagna; (E41F18000270007)
2011-2019 Scientific responsible of industrial contracts with Finceramica Faenza SpA. (Faenza, Italy), based on study and characterization of calcium phosphates and polymers based biomaterials.
2016-2018 NIPROGEN Project "Nature inspires innovative processes for the development of implants for regenerative medicine with a high degree of vascularity and mechanical performance". POR FESR 2014-2020 Emilia Romagna;

	(B42I16000020005), CNR-ISTEC Coordinator.
2013-2016	SMILEY European Project "Smart nano-structured devices hierarchically assembled by bio-mineralization processes." (FP7- NMP.2012.1.4-2-310637). CNR-ISTEC Project Coordinator
2010-2014	OPHIS European Project "Composite phenotypic triggers for bone and cartilage repair." (NMP3-SL-2010-SMALL-3-246373). CNR-ISTEC Project Coordinator
2007-2012	National Project FIRB "Innovative materials for the development of articulate bio-prosthetic (RBIP068JL9). CNR-ISTEC Project Coordinator
2006-2010	TEM-PLANT European Project "New Bio-ceramisation processes applied to vegetable hierarchical structures" (NMP4-CT-2006-033277). CNR-ISTEC Project Coordinator
	<u>Research activities on the integrated archaeological-archeometric study of ceramic and mosaic finds</u>
	Cultural Heritage Group, CNR-ISTEC - Institute of Science and Technology of Ceramic Materials, Faenza (Italy)
2006	Comune di Palena contract: "Rebirth Project of a theoretical-practical ceramic culture and start-up of an artisanal ceramic production in Palena in the wake of local tradition"
2005-2006	Bilateral Project – Scientific cooperation agreement between CNR and CSIC (Spagna). Project title: "Bourbon porcelain from Capodimonte to Buen Retiro: continuity or innovation?" Stay study with the CSIC of madrid, 12-18/03/2006
2003-2004	Agreement with the Province of Salerno - Cultural Heritage-Museums and Libraries Sector and the CNR-ISTEC of Faenza: "Chemical-physical characterization of nineteenth-century majolica tiles of different origins preserved in the Salerno museum"
2003	PRIN2003 – Project title: "Pompei Insula IX, 8: archaeological and archaeometric research for the knowledge, conservation and enhancement of Pompeian buildings"
2001	Agenzia 2000 – Progetto Giovani (cod. CNRG00E87E). Project title: "Archaeological ceramic materials with glass coating: methodology for recognizing the application and firing technologies of the coating"
2000-2001	Agreement with the Municipality of Castelnovo del Friuli (PN) and the CNR-ISTEC of Faenza: "Archaeometric investigations of Friulian graffiti of the fifteenth century"
1999-2006	Cooperative project between Italy and the Islamic Republic of Iran: "Ceramic facings of Islamic monuments and buildings in Iran"
2004-2006	Scientific tutor for the course no. alm 05/003 "Master in Science and Conservation of Materials in Cultural Heritage" - University of Bologna - Faculty of Industrial Chemistry.
	Responsabilities
2013-2022	Contact person for Protection, Prevention, and Security at CNR-ISTEC of Faenza, Prot. ISTE n. 922 del 14/05/2013
2008-2014	Head of the Scientific Laboratory of Chemistry at CNR-ISTEC of Faenza Prot. ISTE n. 672 del 30/12/2008

TEACHING ACTIVITIES

2014-2017	Educational activity in the field of Cultural Heritage between the Academy of Fine Arts of Brera and CNR-ISTEC. Topic: "Notes and applications of spectroscopic and chromatographic techniques in cultural heritage"
2012	Updating course for teachers at the Liceo Scientifico "G. R. Curbastro" of Lugo. Theme: "From wood to bone"
2011	Teaching in the framework of the Research Doctorate in Chemical Sciences - XVII cycle - University of Bologna. Topic: "Biomorphic transformations for regenerative medicine"
2009	Teaching in the training project "Training Courses for Restoration Laboratory" at

- the Historical Museum of Damascus (Syria) - Code no. AID006935014PMULaboratoriesTD04, organized by the Italian-Syrian Cooperation (Italian Ministry of Foreign Affairs), DGAM (General Directorate of Antiquities and Syrian Museums - Ministry of Culture of the Syrian Arab Republic), Beat Al Khebrah Damascus and CNR-ISTEC of Faenza. Theme developed: "Restoration Chemistry"
- 2007 Teaching within the Postgraduate Course - Mosaic: archaeometry, technology and conservation at the CNR-ISTEC in Faenza. Topic: "ICP-AES plasma emission spectrophotometry"
- 2006 Teaching under the contract between the Municipality of Palena and CNR-ISTEC: "Project for the rebirth of a theoretical-practical ceramic culture and start-up of an artisan ceramic production in Palena in the wake of local tradition". Topic: "Analytical techniques applied to ceramic materials"
- 2004 Teaching in the "Master in Science and Conservation of Materials in Cultural Heritage" - University of Bologna - Faculty of Industrial Chemistry. Topic: "Ceramics: diagnostics and conservation"
- 2003 Teaching in the integrated course for Chemical Expert of the Ceramic Industry at the Ghini Institute of Imola. Code 03/2087 Sub. 2 Ed.2. Topic: "Basic ceramic chemistry"
- 2002 Teaching in the integrated course for Chemical Expert of the Ceramic Industry at the Ghini Institute of Imola. Code 2087/03 / prov Sub. 1 Ed.1. Topic: "Basic ceramic chemistry"
- 2001 Teaching in the course "Technician of the Conservation of Cultural Heritage" - R.E.R. Ref. 2259 Ob. 3.02 - Ecipar di Ravenna Soc. Cons. Coop. Topic: "Chemistry of restoration and the environment"
- Lecturer in the context of "Integrated action to the master in Science and Conservation of Materials in Cultural Heritage" - University of Bologna - Faculty of Industrial Chemistry. Topic: "Ceramics: diagnostics and conservation"
- Lecturer in the "Advanced Course on ceramic, stone and mosaic materials for cultural heritage" - University of Bologna - Faculty of Conservation of Cultural Heritage. Topics: "Chemical analysis using AAS, ICP and NAA" and "Chemical laboratory with ICP analysis"
- Lecturer in the "Advanced Course on ceramic, stone and mosaic materials for cultural heritage" - University of Bologna - Faculty of Conservation of Cultural Heritage. Topic: "Chemical laboratory with ICP analysis"

EDUCATION AND TRAINING

- 2013 03-04/04/2013 "Start-Up Initiative - BioItaly & Healthcare 2013" - Advanced course in bio-entrepreneurship, organized by Intesa San Paolo, Milan
- 2012 07-11/05/2012 "BioBusiness 2012" - Advanced course in bio-entrepreneurship, organized by the Italian University of Switzerland, Lugano, Switzerland
- 2012 12-16/03/2012 "Entrepreneurial Journey to Silicon Valley," organized by M31 USA, Santa Clara, California, USA
- 2004 14-18/12/2004 "Synchrotron SOLEIL Training School - New lights on ancient materials" – COST Action G8. Saint-Aubin, France
- 2004 PhD in Chemical Sciences, at the University of Bologna. PhD Thesis on "Inorganic Chemistry" entitled: "Chemical and structural characterization of ceramic and glass coatings with special applications for Cultural Heritage," performed at the CNR-ISTEC of Faenza.
- 2001 02-08/09/2001 Technical-Scientific Seminary "Summer-School of Archaeometry – Physical Methods for the Cultural Heritage", Lecce University
- 2000 License to practice as a chemist, obtained at the University of Bologna, 14/12/2000.
- 2000 A.A. 1999/2000 "Specialization Course of the ceramic, stone and mosaic materials for Cultural Heritage", Bologna University, Faculty of Preservation of the Cultural Heritage
- 1999 Degree in Chemistry, awarded by the G. Ciamician Department of Chemistry at the University of Bologna. Degree Thesis on "Exercises in Applied Chemical

1991

Analysis" entitled: "Chemical characterization of ancient mosaic glasses," performed at the CNR-IRTEC of Faenza.
Graduated with title of Industrial Engineer, with a focus in "Industrial Chemistry - Pollution Control Technician," awarded by the N. Baldini Technical Institute of Ravenna.

PERSONAL SKILLS

- Knowledge on bioactive and bioabsorbable porous ceramic materials for bone replacements
- Knowledge on smart surfaces, nanostructured
- Biomimetic processes on natural templates for the realization of porous ceramics and/or composites
- Solid-gas processes, in hydrothermal conditions, controlled high pressure/temperature conditions, etc.
- Synthesis of biomimetic and/or functionalized apatites and their chemical, physical and structural characterization
- Manufacturing of ceramic-polymer composites made with inorganic phase (e.g. calcium-phosphate based) and organic phase (e.g. collagen, alginate based)
- Study of porous and dense ceramic materials, stones, glasses, pigments, raw ceramic materials with analytical methodologies, such as: ICP-AES, SEM-EDS, XRD, XRF, micro-Raman, transmitted and reflected light optic microscopy, FT-IR, etc.
- Study of the ceramic process: analysis of raw materials, plaster preparation, shaping of the materials, application of the coatings and cooking of the articles

PUBLICATIONS AND AWARDS

- Publications: author of over 70 publications (national and international journals, monographs, conference proceedings)
- Patents: author of 6 international patent
- Technical Reports: author of over 100 technical and scientific reports
- Conferences: Participant in over 50 national and international conferences

Honors and awards:

- 10/26/2011, Genoa: Winner of "Start Cup 2012 - Il Sole 24 ORE - Area Nord," with the entrepreneurial project BONE-AID.
- 11/19-20/2011, Turin: Winner of the Special Award for Innovation of Switzerland, at the Working Capital - National Innovation Awards 2011, with the entrepreneurial project BONE-AID

This Curriculum is provided in the form of a substitutive declaration of certification and substitutive declaration of the deed of notoriety pursuant to Articles 46 and 47 of the d.P.R. 445/2000. For this purpose, the undersigned declares to be aware of the criminal liability provided for by art. 76 of the aforementioned decree for the hypothesis of falsification of documents and false declarations indicated therein.

In accordance with Legislative Decree No. 196 of June 30, 2003, "Personal Data Protection Code," I hereby authorize the processing of my personal data.

Faenza, 06/10/2025

