

Curriculum Vitæ

Personal Data

Name NATALI MURRI Annalisa
Nationality Italian
Date of birth 14/09/1982

Education and Qualifications

2012: Ph.D. in Materials Engineering, University of Bologna (ING-IND/22)
2009: Qualification to practice as a professional engineer (Section A)
2008: Master Degree in building engineering, University of Bologna (Class 4/S)
2019: Achievement of suitability for the profile of III level researcher (competition notice CNR n. 368.35)
2021: Eligibility valid for the assignment of open-ended and fixed-term teaching positions in state AFAM institutions pursuant to art. 1, c. 655 Law 205/17 for the artistic-disciplinary sector ISST/03 – Production Technologies, obtained with a competition for qualifications pursuant to DM 645/2021 (Act 13495 of 06/10/2021)

Professional Expertise

2022 to present: III level researcher with permanent contract at CNR-ISSMC (formerly CNR-ISTEC) selected with competitive procedure, CNR Call n. 368.35, Green Chemistry Strategic Area, PROT. ISTEC-CNR 1897/2022, 10/18/2022

2022 (9 months): Senior Research Fellow at ISTEC-CNR (Faenza, RA) within the project "LAMPO" - Leonardo Automated Manufacturing Processes for cComposites - CDS000750, Industrial Development Program within the Institutional Development Contract (CIS) "Capitanata", PROT. ISTEC-CNR 221/2022, 14/02/2022

2019-2022: III level fixed-term researcher at National Research Council of Italy - Institute of Science and Technology for Ceramics, CNR-ISTEC (Faenza, RA) within the project POR-FESR "*FireMAT – Fire Resistant Materials & Composites*", PROT. ISTEC-CNR 0000873, 15/04/2019.

2018-present: Lecturer for the II Level Academic Diploma course " Innovative Materials and Processes" (ISST / 03) at the Higher Institute for Artistic Industries (ISIA), Faenza (RA). Public call PROT. 1915/C4, 31/07/2018.

2016-2019: III level fixed-term researcher at National Research Council of Italy - Institute of Science and Technology for Ceramics, CNR-ISTEC (Faenza, RA) within the project POR-FESR "*EEE-CFCC - Economically and Ecologically sustainable Evolution of Complex-shape Ceramic matrix Fiber-reinforced Composites*" (public call ISTEC nr. 073.16.01.02, PROT. ISTEC-CNR 0002601, 01/09/2016.

2015-2016: Research fellow at ISTEC-CNR (Faenza, RA) within the project "*Materials and production process of geopolymers artifacts for aerospace and automotive applications*" (Industrial Contract CO-2013/05) aimed at "*Developing geopolymers matrix and fiber reinforced composites for the production of artifacts with specific features*", PROT. ISTEC-CNR N. 0001519, 12/05/2016.

2012-2015: Contractor for CertiMaC Soc. Cons. A r.l., Faenza (RA) within MITAI project – Innovative materials and technologies for industrial applications (In conjunction with ISTEC-CNR, Faenza, RA).

2010-2011: Visiting student at Center for Materials Research (CMR), Curtin University of Technology, Bentley (Perth, Western Australia). Project supervisor: Prof. Arie van Riessen. Research focus on the "*Development and characterization of geopolymers from waste materials for the building industry and investigations on their thermo-mechanical and fireproof properties*".

2009-2011: Ph.D. student at Department of Civil, Chemical, Environmental, and Materials Engineering (DICASM), University of Bologna, and recipient of ministerial scholarship grant "Fondo Giovani". Research focus on "*Advanced materials, in particular ceramics for structural applications*".

2008: Graduating student at Department of Civil, Chemical, Environmental, and Materials Engineering (DICASM), University of Bologna, with experimental master thesis in collaboration with Ardea Progetti e Sistemi S.r.l. (Casalecchio di Reno, BO). Supervisor: prof. Franco Sandrolini.

2007-2008: Trainee and contractor for per Ardea Progetti e Sistemi S.r.l. (Casalecchio di Reno, BO). Activity focused on the design, installation and control of

fiber reinforced composites for structural rehabilitation of civil and historical heritage buildings.

2006-2007: Recipient of Socrates-Erasmus scholarship at Universidad Politécnica de Valencia – Escuela Técnica Superior de Arquitectura (Valencia, Spagna).

Assignments and Responsibilities

2022: Evaluator member of the Thematic Working Group of Experts, "Building _ Ceramic Matrix Composites (CMC)" area, within the European Project Horizon 2020 AMULET – Advanced Materials and Manufacturing and Technologies united for Lightweight (Grant Agreement ID: 101005435)

2020: Scientific Head of Operational Unit for the project SAFERUP! - Sustainable, Accessible, Safe, Resilient and Smart Urban Pavements, Horizon 2020 Marie Skłodowska-Curie Action "Innovative Training Networks - ETN, H2020-MSCA-ITN 2017

2020: Scientific coordinator for ANM-2020/02 Contract - Thermogravimetric tests in oxidative conditions on organic-inorganic composite materials with Aeronautical Service s.r.l., Fiumicino (RM), 17/11/2020

2020: Chief of Laboratory "Electronic Microscopy" at ISTE-CNR, PROT. ISTE-CNR N. 0000434, 18/02/2020

2019: Scientific Head of Operational Unit for the interdepartmental industrial development contract "Lampo - Expansion and Strengthening of the Foggia Leonardo Aerostructures Division" with Leonardo S.p.A., MAE S.p.A, Aviorec S.r.l., CNR.

2019: Task leader for "OR 2.2: Mix-design and process upgrade" within the POR-FESR project "FireMAT" (PG/2018/631345), PROT. ISTE-CNR N. 95, 17/01/2020

2018: Scientific Coordinator of Task Unit for the European Project Proposal KAVA EIT RawMaterials 2018 - Upscaling Project Proposal "NEOFELTS: Novel Ecological Fire-resistant thermal insulators", Prog. ID. 19209

2018: Pro tempore Chief of Laboratory "Thermoanalysis" at ISTE-CNR, Faenza (RA). PROT. ISTE-CNR N. 0000713, 26/03/2018

2017-2018: Scientific Coordinator of the Industrial Contract CO-2016/04 "Development of refractory geopolymers suitable for the production of molds and cores for the foundry of Steel, Cast Iron and Aluminum" with Jodovit s.r.l. PROT. ISTE-CNR N. 0000794, 01/03/2017

2016: Task leader for "OR 1.2: Study of activation, mix-design and characterization mechanisms " within the EEE-CFCC project (PG / 2015/737837), PROT. ISTE-CNR N. 96, 17/01/2020

Training Activity

2018 to date: Contract lecturer for the II Level Academic Diploma course "Innovative Processes and Materials" (ISST / 03) and relative laboratory (75 hours) at the Higher Institute of Artistic Industries - ISIA of Faenza (RA). Rep. n. INCN 2018/3088.

2011-2012: Member of the Commission for Engineer State Certification Exam, Environmental, Civil, Construction and Industrial sectors (I and II session), Faculty of Engineering, University of Bologna

2009-2012: Teaching activity for the courses "Materials Technology and Applied Chemistry", "Chemistry and Technology of Restoration and Conservation of Materials", "Design of building technologies" for the Master's degree program in Building Engineering / Architecture, Faculty of Engineering, University of Bologna.

2010 to date: Supervisor and co-supervisor of more than 10 bachelor's, master's and second level academic degree theses (Industrial Chemistry-University of Bologna; Advanced materials product design-ISIA Faenza; Chemistry and Technologies for materials and Environment- University of Bologna; Building Engineering- University of Bologna).

2009: Tutor of the graduate master course in Building Engineering, Bologna University.

Patents

2020: Patent US20200102432A1: "Flame-resistant structural composite material". C. Bordignon, E. Landi, V. Medri, A. Natali Murri, publication date: April, 02, 2020

2018: Patent WO 2018/179019, PCT/IT2018/050054: "Flame-resistant structural composite material". C. Bordignon, E. Landi, V. Medri, A. Natali Murri, 2018

2014: Patent for Utility Model MI2014U000387: "Composites panels". E. Landi, V. Medri, A. Natali Murri, 2014

Main Publications

Copetti Callai, S.; Tataranni, P.; De Rose, M.; Natali Murri, A.; Vaiana, R.; Sangiorgi, C. *A Preliminary Laboratory Evaluation of Artificial Aggregates from Alkali-Activated Basalt Powder*, Sustainability, 2022, 14: 16653

Papa, E., Natali Murri, A., Vaccari, A., Landi, E., Medri, V. *Geopolymer-hydrotalcite hybrid beads by ionotropic gelation*, Applied Clay Science, 2021, 215: 106326

Ammendola, P., Raganati, F., Landi, E., Natali Murri, A., Miccio, F. *Kinetics of the carbonation reaction of an SrO-Al₂O₃ composite for thermochemical energy storage*, Chemical Engineering Journal, 2021, 420: 129618

Papa, E., Landi, E., Natali Murri, A., Miccio, F., Vaccari, A., Medri, V. *CO₂ adsorption at intermediate and low temperature by geopolymer-hydrotalcite composites*, Open Ceramics, 2021, 5: 100048

Medri, V., Papa, E., Mor, M., Vaccari, A., Natali Murri, A., Piotte, L., Melandri, C., Landi, E. *Mechanical strength and cationic dye adsorption ability of metakaolin-based geopolymer spheres*, Applied Clay Science, 2020, 193: 105678

Natali Murri, A., Miccio, F., Medri, V., Landi, E. *Geopolymer-composites with thermomechanical stability as oxygen carriers for fluidized bed chemical looping combustion with oxygen uncoupling*, Chemical Engineering Journal, 2020, 393, 124756

Miccio, F., Landi, E., Medri, V., Papa, E., Natali Murri, A. *Chemical Looping Gasification of Biomass in a Bed of Geopolymeric Oxygen Carrier*, Chemical Engineering Transactions, 2020, 80: 253-258

Miccio, F., Natali Murri, A., Medri, V., Landi, E. *Utilization of Fireclay for Preventing Fluidized-Bed Agglomeration during Biomass Thermochemical Processing*, Industrial & Engineering Chemistry Research, 2019, 58(51): 23498-23507

Papa, E., Medri, V., Paillard, C., Contri, B., Natali Murri, A., Vaccari, A., Landi, E. *Geopolymer-hydrotalcite composites for CO₂ capture*, Journal of Cleaner Production, 2019, 237: 117738

Papa, E.; Medri, V.; Natali Murri, A.; Miccio, F.; Landi, E. *Ice-Templated Geopolymer—Fe/Mn Oxide Composites Conceived as Oxygen Carriers*, Ceramics, 2019, 2(1): 148-160

Papa, E.; Medri, V.; Natali Murri, A.; Laghi, L.; De Aloysio, G.; Bandini, S.; Landi, E. *Characterization of alkali bonded expanded perlite*. Construction and Building Materials, 2018, 191: 1139-1147

Landi, E.; Medri, V.; Natali Murri, A.; Bandini, S.; De Aloysio, G.; Laghi, L.; D'Angelo, E.; Giorgini, L.; Zattini, G.; Bernardelli, P.; Fabbri, P.; Mingazzini, C.; Scafè, M.; Bezzi, F., *Compositi ceramici, nuova frontiera per edilizia e trasporti*, Econerre (online), 2018

Giorgini, L.; D'Angelo, E.; Zattini, G.; Laghi, L.; Bandini, S.; De Aloysio, G.; Medri, V.; Landi, E.; Natali Murri, A.; Mingazzini, C.; Fabbri, P.; Bezzi, F.; Mazzanti, F.; Scafè, M.; Bernardelli, P., *Fire resistant low cost inorganic ceramic composites*, Composite Solution, 2018, 12: 12-15

A. Natali Murri, V. Medri, E. Papa, L. Laghi, C. Mingazzini; E. Landi, *Porous Geopolymer Insulating Core from a Metakaolin/Biomass Ash Composite*, Environments, 2017, 4 (4): 86

F. Miccio, A. Natali Murri, E. Landi, *Synthesis and characterization of geopolymer oxygen carriers for chemical looping combustion*, Applied Energy, 2017, 194:136-147

A. Natali Murri, V. Medri, E. Landi, *Production and thermomechanical characterization of wool-geopolymer composites*, Journal of the American Ceramic Society, 2017, 00:1-10

A. Vaccari V. Medri, E. Papa, A. Natali Murri, E. Landi, P. Benito, *La porosità nei geopolimeri*, La Chimica e l'Industria, 2016, 1: 16-18

A. Natali Murri, V. Medri, A. Piancastelli, A. Vaccari, E. Landi, *Production and characterization of geopolymer blocks based on hydroxyapatite rich biomass ashes*, Ceramics International, 2015, 41 (10): 12811-12822

A. Natali Murri, V. Medri, A. Ruffini, E. Papa, E. Landi, *Study of the chemical activation of hydroxyapatite rich ashes as raw materials for geopolymers*, Ceramics International, 2015, 41 (8): 9734-9744

A. Natali Murri, E. Papa, V. Medri, E. Landi, *Design of Wool-Geopolymer pots*, Ceramic Engineering and Science Proceedings, 2014, 35 (8): 79-86

A. Natali Murri, W.D.A. Rickard, M.C. Bignozzi, A. van Riessen, *High- temperature behavior of ambient cured alkali-activated materials based on ladle slag*, Cement and Concrete Research, 2013, 43: 51-61

M. C. Bignozzi, S. Manzi, A. Natali Murri, E. Tattini, A. van Riessen, *Comportamento a corrosione di barre d'armatura in materiali a base di scarti industriali chimicamente attivati*, in: atti XI Convegno Nazionale AIMAT, Cassino (FR), 2012: 45-48

A. Natali Murri, S. Manzi, M. C. Bignozzi, *Novel fiber-reinforced composite materials based on sustainable geopolymer matrix*, Procedia Engineering, 2011, 21:1124-1131

F. Sandrolini, S. Manzi, A. Natali Murri, *Cement-polymer prepreg carbon fabrics in concrete strengthening*, Restoration of Buildings and Monuments, 2010, 16 (4/5): 377-386

R&D Technical Reports

2012 to date: Author and co-author of more than 30 Technical Reports

Conferences and seminars

2010 to date: Author, co-author and presenter for more than 30 contributions in national and international conferences.

This Curriculum is made in the form of a substitutive declaration of certification and a substitutive declaration of the deed of notoriety pursuant to Articles 46 and 47 of the Presidential Decree 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.

The undersigned authorizes the processing of personal data contained therein and for the purposes related to the use of the same pursuant to Legislative Decree no. 196/03 and subsequent amendments and additions.

Faenza, December 27th, 2022

