

Francesco Andreatta

University of Udine

Polytechnic Department of Engineering and Architecture

POSITION

from 01.04.2015

Professor

Materials science and technology (09/D1 SSD ING-IND/22)

University of Udine, Italy

Polytechnic Department of Engineering and Architecture

EMPLOYEMENT

01.09.2009 – 31.03.2015

Researcher

Materials science and technology (09/D1 SSD ING-IND/22)

University of Udine, Italy

Department of Chemistry, Physics and Environment

2004-2009

Post-doc researcher

University of Udine, Italy

Department of Chemistry, Physics and Environment

2003-2004

Post-doc researcher

Delft University of Technology, The Netherlands

Faculty of Materials Science and Engineering, Light Metals Processing (LMP)

EDUCATION

1999-2003

PhD researcher

Netherlands Institute for Metals Research (NIMR), The Netherlands

Corrosion Technology and Electrochemistry (CTE)

PhD thesis: Local electrochemical behaviour of AA7xxx aluminium alloys

Supervisors: prof. J.H.W de Wit, prof. H. Terryn

1992-1999

MSc in Materials Engineering

University of Trento, Faculty of Engineering

PROFESSIONAL MEMBERSHIPS

- Member of the Associazione Italiana di Metallurgia (AIM)
- Member of the Associazione Italiana di Ingegneria dei Materiali (AIMAT)
- Member of WP14 Coatings of the European Federation of Corrosion

RESEARCH ACTIVITIES

Current research topics

- Study of stiction phenomena in automotive braking systems (in collaboration with ITT Italia s.r.l)
- Study of the durability of materials employed in professional food service equipment (in collaboration with Electrolux Professional s.p.a)
- Study of the durability of materials employed in professional laundry systems and of the durability of textiles (in collaboration with Electrolux Professional s.p.a)
- Characterization of materials employed in the HVAC&R field (in collaboration with Modine)
- Development of nanostructured coatings for corrosion protection
- Study of corrosion inhibitors for ferrous and light alloys
- Use of electrochemical methods, in particular local technics (scanning kelvin probe force microscopy and electrochemical micro-cell) for corrosion studies
- Recycling of waste materials to produce powders for sintering ceramic compounds
- Study of geopolymer based coatings for corrosion protection of ferrous and non ferrous alloys

Participation to academic research projects

- FasTher – Sistemi vernicianti ecocompatibili multifunzionali
Interreg V-A Italia-Austria 2014-2020: Project ID: ITAT1085
2019-2021
- THALASSA (TechNology And materials for safe Low consumption And low life cycle cost veSSels And crafts)
PON Ricerca e Innovazione 2014-2020 – Area di specializzazione: Blue Growth ID: ARS01_00293PON
2019-2021
- Project “HEaD HIGHER EDUCATION AND DEVELOPMENT” OPERAZIONE 2 UNIUD (FP1619942003, canale di finanziamento 1420AFPLO2) SSD: ING-IND/22 - Titolo: Apparecchiature innovative per il settore “Food Service”: studio di rivestimenti anti-aderenti ad alta durabilità e migliorata salubrità ed igiene
2019-2020
- mCBEEs - Advanced integrative solutions to Corrosion problems beyond micro-scale: towards long-term durability of miniaturized Biomedical, Electronic and Energy systems
Project ID: 764977 – H2020-EU.1.3.1. Fostering new skills by means of excellent initial training of researchers
2017-2021
- Smart hybrid sol-gel coatings - Corrosion protection of aluminium and aluminium alloys using hybrid sol-gel coating
TALENTS Fellowship Programme granted to P. Rodic, Josef Stefan Institute (Ljubljana, Slovenia)
2017-2018 (18 months)
- MPNS COST Action MP1407 – Electrochemical processing methodologies and corrosion protection for device and systems miniaturization (e-MINDS)
2015-2019
- Danube Initiative and Alps Adriatic Network (DIANET)
Financed by Fondo Sociale Europeo (DIANET – incoming), granted to S. Shruti
Cerium, gallium and zinc sol-gel mesoporous bioactive glass coating deposited on titanium alloy
2014-2015

- EURAXLES IP – Minimizing the risk of fatigue failure on railway axes

FP7 - Transport

FP7-SST-2010-RTD-1 (265706)

2010-2014

- Bilateral Project Italy – Spain

Rivestimenti multistrato ibridi organici – inorganici con proprietà di self healing

University of Udine and university of La Laguna

2009-2011

- MULTIPROTECT IP – Advanced environmentally friendly multifunctional corrosion protection by nanotechnology

FP6-2003-NMP-NI-3 (011783) Nanotechnologies and Nanosciences, knowledge-based multifunctional Materials, and new Production Processes and Devices

2005-2009

- PRIN 2003 Development of new environmentally friendly protective systems for light alloys durability

2003-2005

Participation to industrial research projects

- ITT Italia s.r.l.

Investigation of corrosion and stiction phenomena in automotive braking systems

from 2014

Scientific supervisor from 2018

- Electrolux Professional s.p.a.

Study of degradation of materials employed in professional food service equipment (PhD topic)

from 2018

- Electrolux Professional s.p.a.

Study of degradation of materials employed in professional laundry systems and degradation of textiles

from 2018

- Electrolux Professional s.p.a.

Pre-treatment of metallic surfaces prior to bonding with Si-based adhesives

2017-2018

- Electrolux Professional s.p.a.

Structured approach to failure analysis (PhD project)

2014-2018

Scientific supervisor (in collaboration with prof. L. Fedrizzi) and PhD supervisor of A. Gagliardi

- Iveco S.p.A. Defence Vehicles

Characterization of the corrosion behaviour of metallic materials commonly used in armoured vehicles

2015

Scientific supervisor

Patent

- A. Sin, L. Fedrizzi, F. Andreatta, A. De Nicolò

Equipment for studying and determining the physico-chemical conditions of adhesion between two mechanical elements, in particular between a braking element and an element to be braked of a vehicle

Presented by ITT Italia s.r.l. 05.09.2016

Scientific collaborations

- University of Mons (UMONS), Materials Science Department

Mons, Belgium

prof. M.G. Olivier

- Delft University of Technology (TUDELFT), Department of Materials Science and Engineering
Delft, The Netherlands
prof. J.M.C. Mol
- Vrije Universiteit Brussel (VUB), Department of Electrochemical and Surface Engineering (SURF)
Brussel, Belgium
prof. H. Terryn
- Josef Stefan Institute
Ljubljana, Slovenia
prof. I. Milosev
- University of Cadiz,
Cadiz, Spain
prof. F.J. Botana
- Dechema Forschungsinstitut
Frankfurt am Main, Germany
ing. W. Furbeth
- Instituto de Química (UNESP – Univesidade Estadual Paulista)
Araraquara, Brasil
prof. A.V. Benedetti
- Istituto de Ceramica y Vidrio (ICV) – Consejo Superior de Investigaciones Scientificas (CSIC)
Madrid, Spain
prof. A. Duran
- Fraunhofer Gesellschaft IPA
Stuttgart, Germany
dr. D. Ondratscheck
- EADS Innovation Works
Munich, Germany
Dr. T. Hack

Scientific production

- 70 documents (source SCOPUS)
- H index: 19; Citations: 1280; Co-authors: 128
- 105 presentations at international/national conferences
- 1 Plenary lecture – The use of the electrochemical micro-cell for the investigation of corrosion phenomena
EMCR 2015 - 11th International Symposium on Electrochemical Methods in Corrosion Research
Troia, Portugal, 24-29 May 2015

Conference and workshop organization

- 11th International Symposium on Electrochemical Micro & Nanosystem Technologies (EMNT2016)
Member of the Scientific committee
16-19 August 2016, Bruxelles, Belgium
- International congress AETOC2009
Member of the organizing committee
15-18 April 2009, Grado (UD), Italy
- National congress Giornate Nazionali sulla Corrosione e Protezione
Member of the organizing committee
24-26 June 2009, Udine, Italy

Positions of responsibility concerning research activities

- Supervisor of students at the University of Udine

- Collaboration in PhD projects with international partners
- Supervision of visiting researchers at the University of Udine
- Reviewer of a research project for the Flanders Innovation & Entrepreneurship
- Reviewer for the following journals: Corrosion Science, Progress in Organic Coatings, Electrochimica Acta, Surface and Interface Analysis, Applied Surface Science and Surface and Coatings Technology.

TEACHING ACTIVITIES

Academic courses

- Recycling of Materials (6 credits, 60 hours)
University of Udine, Polytechnic Department of Engineering and Architecture
Master degree course
Energy and Environment
- Structure and mechanical properties of materials (6 credits, 60 hours)
University of Udine, Polytechnic Department of Engineering and Architecture
Master degree course
Mechanical Engineering

Other teaching activity

- Laboratory of metallurgy
University of Udine, Polytechnic Department of Engineering and Architecture
Post-graduate course (2nd cycle university degree)
Metallurgical Engineering

Most relevant seminars and training courses

- Surface Quality: competition among Al alloys. A critical comparison in terms of corrosion and surface finishing
Summer school 4L- Alloys, Life Long Learning on Light Alloys
University of Padova, Department of Engineering and Management
Vicenza, 24-28 July 2017
- Using Microcells to Investigate Corrosion Phenomena
Training Course at AETOC 2012
AETOC 2012 training course, Maragogi-Al, Brasil, 23 November 2012
- The use of the electrochemical micro-cell and GDOES for electrochemical depth profiling of metal surfaces
Seminar on invitation of the Flemish Research Council
Vrije Universiteit Brussel, Bruxelles, Belgium, 9 November 2012
- Use of electrochemical micro-cell for corrosion studies
Training Course at AETOC 2011
AETOC 2011 training course, Mons, Belgium, 13 April 2011
- Electrochemical micro-cell
Training Course "The use of the electrochemical techniques" in the framework of the MULTIPROTECT project
MULTIPROTECT training course, Grado, Italy, 14 Aprile 2009
- Electrochemical micro-cell and Use of electrochemical micro-cell to study metal alloys
Training Course "The use of the electrochemical techniques to study coatings protection and degradation" in the framework of the MULTIPROTECT project
MULTIPROTECT training course, Vicenza, Italy, 25-26 May 2006

Positions of responsibility concerning research activities

- Supervisor and co-supervisor of students at the University of Udine

- Member of the PhD evaluation committee of F. Jensen
Technical University of Denmark
Copenhagen, Denmark 21 May 2019
- Discussion leader of the committee for the evaluation of the PhD thesis of B. Zhu
Jönköping University (JTH)
Jönköping, Sweden, 12 April 2019
- Examiner of the PhD thesis of A. Conte
Università degli Studi di Padova, 2018
- President of the PhD evaluation committee of R. Offoia
Innovative galvanic coatings for high temperature applications
Università degli Studi di Udine, 10 Aprile 2017
- Member of the PhD evaluation committee of I. Schoukens
Vrije Universiteit Brussel
Bruxelles, Belgium, 8 October and 9 November 2012

ADMINISTRATION ACTIVITIES

Committees

- Member of the teaching board of the PhD course in Environmental and Energy Engineering Science (since 2014)
University of Udine, Polytechnic Department of Engineering and Architecture
- Member of the teaching board of the post-graduate course in Metallurgical Engineering (2nd cycle university degree)
University of Udine, Polytechnic Department of Engineering and Architecture

Other activities

- Member of the advisory board of the library of the University of Udine
- Referent for the Director of the Polytechnic Department of Engineering and Architecture for library services