

CURRICULUM VITAE

António Alexandre da Cunha Bastos

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1. Biographic Information

Name: António Alexandre da Cunha Bastos

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Scopus author ID: 35298442700

CiênciaID: 6913-6D0D-E97D

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2. Metrics

h-index = 33; 115 documents; 3603 citations from 2632 documents, 223 co-authors (source: Scopus, 05/04/25)

3. Education

- PhD in Chemical Engineering, Instituto Superior Técnico, Technical University of Lisbon (2005).
- Master in Chemistry - Inorganic Chemistry, Oporto Faculty of Sciences (1999).
- Degree in Chemistry (Licenciatura), Oporto Faculty of Sciences (1994).
- Máster Universitario en Simulación Numérica en Ciencia e Ingeniería con COMSOL Multiphysics, Universidade de Málaga (Oct2020-Jun2021).
- Certificado de competências pedagógicas n.º F642639/2016

4. Scientific interests

Electrochemistry, corrosion, organic coatings, microelectrodes, modelling.

5. Past and present activities

15/02/2025 – 31/12/2025. Investigador Doutorado (Nível 1). Researcher with PhD. CICECO/DEMaC, UA. Portuguese representative of the International Society of Electrochemistry (ISE): 2024-2026. Member of Divisão Técnica de Corrosão e Proteção de Materiais da Sociedade Portuguesa de Materiais (since 2022).

15/01/2019 – 14/01/2025. Equiparado a Investigador Auxiliar. CICECO/DEMaC, University of Aveiro.

10/07/2018 – 14/01/2019. Investigador Doutorado (Nível 1). Researcher with PhD. CICECO/DEMaC, University of Aveiro.

01/09/2015 – 30/06/2018. Manager of Science and Technology. CICECO/DEMaC, University of Aveiro.

30/01/2006 – 31/07/2006. Invited Assistant Professor. Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

13/02/2013 – 31/07/2013. Invited Assistant Professor. Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

01/10/2005 – 31/08/2015. Post-doctoral researcher. Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

September 2002 to July 2005. PhD candidate. Chemical Engineering Department, Instituto Superior Técnico, Lisbon, Portugal.

August 1999 to August 2002. Junior researcher. Chemical Engineering Department, Instituto Superior Técnico, Lisbon, Portugal. Project *ECSC 7210-PR-189 - Investigation of Damaging Mechanisms of Coil-Coated Sheet During Forming in Order to Enhance the Performance Predictability of Finished Parts*. Partners: Instituto Superior Técnico (Portugal), ThyssenKrupp Stahl (Germany), Max Plank Institut für Eisenforschung (Germany) e Voest-Alpine Stahl Linz GmbH (Austria).

November 1996 to February 1999. Master's student. Project *P-1373 PRIMAQUA, Reducing the environmental impact of anticorrosive primers – Development of water-based formulations*. Partners: Fábrica de Tintas 2000 Lda (Portugal) and Oporto Faculty of Sciences (Portugal).

1993/94. Final year investigation. Development of a FORTRAN 77 program using *ab initio* methods in Theoretical Chemistry, Oporto Faculty of Sciences, Porto, Portugal.

6. Teaching activities

2021-present. Degradação e Protecção de Materiais / Materials protection and degradation, UC 40793, Materials and Ceramic Engineering, 3rd year, 2nd semester, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

2021-present. Materiais e Energia / Materials and Energy, UC 42098, Master in Materials Engineering, 1st year, 1st semester, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

2006 – 2017. Corrosão e Protecção de Materiais / Corrosion and Protection of Materials, UC 43579, Materials and Ceramic Engineering, 3rd year, 2nd semester, Department of Materials and Ceramic Engineering, University of Aveiro, Aveiro, Portugal.

2019. Tecnologia dos Materiais / Materials Technology, CTESP Tecnologia Mecânica, Escola Superior de Tecnologia e Gestão de Águeda.

2017. Estrutura e Propriedades de Materiais / Structure and Properties of Materials, CTESP Manutenção Industrial, Escola Superior de Tecnologia e Gestão de Águeda.

Curso de Engenharia de Corrosão e Protecção / Course on Corrosion and Protection Engineering (3 days course), UNAVE – Associação para a Formação Profissional e Investigação da Universidade de Aveiro, 2013, 2015 (two courses), 2017, 2021.

Curso de Degradação e Tratamento de Superfícies / Course on Surface Treatments and Degradation (3 days course), UNAVE – Associação para a Formação Profissional e Investigação da Universidade de Aveiro, 2014 (two courses), 2015.

International Summer School Multifunctional Smart Coatings and Surfaces (2016, 2017, 2018)

- SVET and SRET (1st edition)

- Local Electrochemical techniques in corrosion research (2nd and 3rd editions)

- Lab session “Localised measurements of pH and dissolved O₂ in solution” (6 sessions in each edition)

Curso de Introdução à Célula de Hull (18 h), / **Introduction to the Hull Cell** (18 h), DEMaC, Universidade de Aveiro, 15 Nov, 22 Nov, and 3 Dez 2021.

7. Invited Lectures

Tipos de Corrosão, Curso Princípios, Tipos e Causas de Corrosão Metálica, Divisão Técnica de Corrosão e Protecção de Materiais da Sociedade Portuguesa de Materiais, LNEG, Lisboa, 26 September 2024.

Types of Corrosion, Course Principles, Types and Causes of Metallic Corrosion, Technical Division of Corrosion and Material Protection of the Portuguese Society of Materials, LNEG, Lisbon, September 26, 2024.

Como a Inteligência Artificial está a ajudar no combate à corrosão, proferida no Dia Mundial para a Sensibilização para Corrosão, organizada pela Divisão Técnica de Corrosão e Protecção de Materiais da Sociedade Portuguesa de Materiais e que teve lugar na sede da Ordem dos Engenheiros em Lisboa, a 24 de Abril de 2024.

How Artificial Intelligence is helping to combat corrosion, given on World Corrosion Awareness Day, organized by the Technical Division of Corrosion and Material Protection of the Portuguese Society of Materials and which took place at the headquarters of the Order of Engineers in Lisbon, on April 24, 2024.

Electroquímica e Materiais, oficina de 4 horas para professores do 11º ano, apresentada durante os VIII e IX Encontros da Casa das Ciências, Universidade de Aveiro, Julho de 2023 e Julho de 2024.

Electrochemistry and Materials, 4-hour workshop for 11th grade teachers, presented during the VIII and IX Meetings of Casa das Ciências, University of Aveiro, July 2023 and July 2024.

Pilha Electroquímica, Funcionamento e Aplicações, oficina de 4 horas para professores do 12º ano, apresentada durante os VIII e IX Encontros da Casa das Ciências, Universidade de Aveiro, Julho de 2023 e Julho de 2024.

Electrochemical Cell, Functioning and Applications, 4-hour workshop for 12th grade teachers, presented during the VIII and IX Meetings of Casa das Ciências, University of Aveiro, July 2023 and July 2024.

Laboratory analyses of metal corrosion and degradation of steel reinforced concrete, ENGINEER Summer School, Aveiro, 4 and 5 October 2023.

On-site monitoring of steel corrosion in concrete, online workshop, project ENGINEER with Cyprus University of Technology, Politecnico di Milano, University College London and the University of Aveiro, 9 July 2023.

Session during the BIP-Erasmus course on Multifunctional Smart Coatings and Interfaces (online and DEMaC-UA)

Localised techniques for corrosion studies, online, 19/06/2023.

Electrochemical characterization of AA2024 corrosion inhibited with cerium ions, laboratory classes (July 2023).

Electrochemical characterisation of AA2024 coated with a ALD films, laboratory classes (July 2023).

Anodising of Aluminium, NetPore Training School, NetPore Network for research, innovation and product development on porous semiconductors and oxides, COST contract n° CA20126, University of Aveiro, Portugal, 7 July 2022.

Metallic Coatings for Corrosion Protection, Training Course of the COST Action MP1407: Electrochemical processing methodologies and corrosion protection for device and systems miniaturization (e-Minds), Mons, Belgium, 21 March 2019.

Localised Techniques in Corrosion Research, Training Course of the COST Action MP1407: Electrochemical processing methodologies and corrosion protection for device and systems miniaturization (e-Minds), Mons, Belgium, 22 March 2019.

Electrochemical Techniques in Materials Science and Engineering, Seminar of Materials Science Engineering, Joint PhD Program in Advanced Materials and Processing (AdvaMTech / FCT, 4th Edition), Aveiro, July 12th, 2017.

Performance of self-healing coatings assessed by micro-electrochemical techniques, Seminar of Materials Science Engineering, Joint PhD Program in Advanced Materials and Processing (AdvaMTech / FCT, 3rd Edition), Aveiro, July 7th, 2016.

The Scanning Vibrating Electrode Technique (SVET), presented in the Inauguration Day of the Local Electrochemistry Lab, of The Research Group Electrochemical and Surface Engineering, Vrije Universiteit Brussel, May 9, 2012.

1-Principles of corrosion, thermodynamics and kinetics, and

2-Types of corrosion and methods for corrosion protection

Doctoral School of Functional Materials and Technology, University of Tartu, June 20-22, 2011.

Tintas e Vernizes / Paints and Varnishes, curso Os Materiais na Arquitectura e Construção Civil, Propriedades e Aplicações, FUNDEC – Associação para a Formação e o Desenvolvimento em Engenharia Civil e Arquitectura, Instituto Superior Técnico, May 19, 2005.

8. Invited Plenary and Keynote Lectures

EIS Characterization of Mechanically Formed Coil-Coatings, A.C. Bastos, A.M.P. Simões, Keynote, First Regional Meeting of the International Society of Electrochemistry (ISE), Prague, Czech Republic, August 15th to 19th, 2022.

From corrosion to biology. A tour with microelectrode applications, Plenary Lecture on the XXI Meeting of the Portuguese Electrochemical Society and XVIII Iberian Electrochemistry Meeting, Bragança, Portugal, September 14-17, 2016.

Application of SVET/SIET Techniques to Study Self-Healing Properties of Protective Coatings, Keynote, XV Meeting of the Portuguese Electrochemical Society, Lisboa, September 2-6, 2008.

9. Consulting activities for the industry

2018-2021. Jade Creation, Albergaria-a-Velha. Substituição de paládio por platina em banhos de eletrodeposição decorativos. Replacement of palladium by platinum in decorative electroplating baths.

2018-2019. BOSCH Cacia. Análise de defeitos em fluxímetros de água. Defect analysis of water flux meters.

2017. Plataforma do Mar (U. Aveiro) and Praia da Costa Nova (boat, Aveiro) – Corrosão em hélices, descrição electroquímica. Corrosion of naval propellers – an electrochemical description.

2016. CUF – Químicos Industriais (Estarreja) – Corrosão e perfuração de tubos no interior de um reebulidor em aço da destilação da anilina. Corrosion and perforation of tubes inside a steel aniline distillation reboiler.

2015. Prozinco (Estarreja) – Avaliação das causas da perda de aderência da camada exterior de um esquema de pintura em descarregadores de barragem. Evaluation of loss of adhesion of the external layer of a painting scheme on dam spillways.

2012. OLI – Oliveira e Irmão (Aveiro) – Corrosão de racords de latão após 10 segundos de imersão em H₂SO₄ 50%. Corrosion of brass fittings after 10 seconds of immersion in 50% H₂SO₄.

2007. Fluidinova (Moreira da Maia) – Resistência da liga de aço inoxidável 316L em meios contendo cloreto de cálcio. Influência da concentração de cloreto, do pH e da temperatura. Resistance of 316L stainless steel alloy in media containing calcium chloride. Influence of chloride concentration, pH and temperature.

10. Technical support of SVET/SIET equipment

2006-2024. DEMaC, Universidade de Aveiro. Operation and maintenance of two SVET/SIET systems. Teaching the operation of equipment, data treatment, data analysis, care and maintenance to students, researchers and visitors.

2012. Universidade de São Paulo, Brazil, Escola Politécnica, Departamento de Engenharia Química (Prof. Idalina Vieira Aoki). Installation and teaching the operation with the SVET/SIET system from Applicable Electronics (USA).

2009. Universidade de La Laguna, Tenerife, Canary Islands, Spain. Departamento de Química (Prof. Ricardo Manuel Souto Suarez). Repair and teaching the operation with the SVET/SIET system from Applicable Electronics (USA).

2008. Universidade Federal do Rio Grande do Sul, Escola de Engenharia (Prof. Luis Frederico Pinheiro Dick). Installation and teaching the operation with the SVET/SIET system from Applicable Electronics (USA).

2001-2005. Instituto Superior Técnico, Lisboa. Use and maintenance of SVET/SIET equipment. Teaching all users of the equipment.

11. Supervision experience

a) PhD

Olga Karavai – *Mapping local corrosion parameters using SVET and SIET* (concluded 20/10/17).
(co-supervisor Prof. Mário Ferreira).

Rui Sampaio – *Electrochemical Sensors for Chloride and pH Monitoring in Reinforced Concrete Structures* (concluded 14/09/21)
(co-supervisor Prof. Mário Ferreira).

Mirela Santos – PhD (1st year) – *Pitting corrosion in copper heat exchangers*
(co-supervision with Prof. João Tedim).

Paul Okhiria – PhD AIM-NEXT MSCA Doctoral Network – *Cemented carbides for highly corrosive environments*
(co-supervision with Prof. Ana Senos).

b) Post-doctoral fellows

Marina Martins Mennucci (Post-doctoral research)
15/11/19 – 31/12/21, *Electrodeposition of Cr(VI) free black coatings*

Francielly Cesconeto (Post-doctoral research)
15/01/20 – 14/07/20, *Replacement of palladium by platinum in decorative electroplating baths*

Marcela Citlalim Quevedo Reyes (Post-doctoral research)
01/10/13 - 30/09/15, *Study of galvanic action at multiscale and multimaterial levels* (overseas postdoctoral stay supported by CONACYT – Consejo Nacional de Ciencia y Tecnología, Mexico);
15/11/15 - 31/10/16, *Análise e mitigação de casos de corrosão nas redes eléctricas da EDP Distribuição* (Smart-Materials project, Universidade de Aveiro and EDP Distribuição).

c) Master thesis

Inês de Carvalho Dionísio (2024) – *Eléctrodos de diamante para a produção de hidrogénio verde / Diamond electrodes for the production of green hydrogen*. Co-orientação Miguel Neto.

Juliana Ferreira de Almeida (2024) – *Wear and corrosion resistance of industrial hardmetal grades for metal forming applications*. Co-orientação Filipe Oliveira.

Alexandra Margarida Marques dos Santos (2024) – *Efeito da proporção WC/Co na resistência à corrosão do metal duro / Effect of the WC/Co ratio on the corrosion resistance of hardmetals*. Co-orientação Ana Senos.

Ruben Ribeiro Cotton (2023) – *Desenvolvimento de tratamentos de superfície para eléctrodos de aço níquelado usados na produção de hidrogénio / Development of surface treatments for nickel-plated steel electrodes used for hydrogen production*. Co-orientação de João Tedim.

Rui Pedro Oliveira Borges (2023) – *Defeitos em peças de alumínio anodizado e sua solução / Defects in anodized aluminium parts and their solution*.

Maria Alves Barreto (2023) – *Proteção da corrosão do cobre em aplicações industriais / Corrosion protection of copper in industrial applications*. Co-orientação de Isabel Sousa.

Rodrigo Bento Montes (2021) – *Obtenção de revestimentos negros por Ni electroless para acabamento de máquinas fotográficas / Black coatings by electroless Ni for the finishing of photographic cameras*.

Luiane Nazareth (2020) – *Análise e mitigação de casos de corrosão da Empresa Prio / Analysis and mitigation of corrosion at Prio company*.

d) Visitors

Cristina Ojalvo Guiberteau, Postdoctoral Fellow "Margarita Salas" (University of Extremadura, Badajoz, Spain). (January 2023 to January 2024). *Corrosion resistance of TiCN and TiCN:Si5*.

Ieva Baruaskiene (Kaunas University of Technology, Lithuania). (10-17 December 2023). *EIS analysis of sputtered Fe₂O₃ films on stainless steels for OER*.

Joel Rodrigues (PhD student at Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil). Visit from 03/12/2018 to 14/02/2019. Project: *Magnesium alloys for controlled dissolution inside the human body*.

Zahid Mohammad Mir (PhD student at Helmholtz-Zentrum Geesthacht, Germany). Visit from 15/10/2018 to 18/12/2018). COST action number: CA15202; STSM title: *Application for Evaluating Self-healing Capacity of Chloride entrapping Nano-Containers in Cementitious Materials at University of Aveiro*.

Mihael Bucko (Professor at Military Academy, Belgrade, Serbia, and Researcher at Faculty of Technology and Metallurgy, University of Belgrade, Serbia) Visit from 25/03/2018 to 07/04/2018. Short term scientific mission (STSM) titled *The study of metal corrosion in deep eutectic solvents by SVET*, sponsored by COST action MP 1407.

Joseane de Andrade Santana (PhD student at Universidade Federal de Sergipe, Brazil). Visit from 05/09/17 to 28/02/18. Project: *Desenvolvimento e caracterização de revestimentos híbridos orgânicos protetivos aplicados aos substratos de Ti e TiAl6V4 para aplicações biomédicas*.

Zahid Mohammad Mir (PhD student at Helmholtz-Zentrum Geesthacht, Germany). Visit from 15/10/2017 to 28/10/2017. Short term scientific mission (STSM) titled *Application for an exchange grant to visit Electrochemistry Department at University of Aveiro, Portugal for 2 weeks*, sponsored by the COST Action CA 15202 SARCOS, Self-healing As preventive Repair of Concrete Structures (COST – European Cooperation in Science & Technology).

Anissa Bouali (PhD student at Helmholtz-Zentrum Geesthacht, Germany) Visit on October 2017 and November 2018. Project: *The Effect of Solution Evaporation on SVET Measurements*.

e) Third year projects (Industrial Project) of Materials Science and Engineering.

2023-2024. Pedro Santos. *Influência da temperatura no tamanho de grão do cobre e sua corrosão / Influence of temperature on the grain size of copper and its corrosion*.

2022-2023. Eduarda Barreto. *Deposição de um Filme Negro em Peças Complexas de Aço Inoxidável / Deposition of a black finish on complex stainless-steel parts*.

- 2021-2022. Inês Parente. *Prevenção da corrosão em caldeiras de máquinas de café produzidas na empresa FLAMMA / Corrosion prevention in boilers of espresso coffee machines produced by FLAMMA.*
- 2021-2022. Ana Rita Nunes Martinho. *Estudo da resistência à corrosão de aços inoxidáveis usados em lava-louças / Corrosion resistance of stainless steels used in dishwashers.*
- 2021-2022. João Victor Fonseca. *Caracterização microestrutural e mecânica de graus do metal duro (WC-Co) / Microstructural and mechanical characterization of carbide grades (WC-Co).*
- 2020-2021. Alexandra Santos. *Estudos de corrosão em ligantes metálicos para carbonetos cementados / Corrosion studies of metal binders for cemented carbides.*
- 2020-2021. Bernardo Botto. *Inspeção de permutadores de cobre com falha por corrosão / Inspection and analysis of copper heat-exchangers with failure by corrosion.*
- 2020-2021. Gabriela Campos. *Sol-gel coatings loaded with layered double hydroxides for corrosion protection of aerospace aluminium alloy 2024: production and testing.*
- 2019-2020. Rodrigo Gonçalves. *Influência do tratamento da superfície no desempenho anticorrosivo de revestimentos epoxídicos. Um estudo por espectroscopia de impedância electroquímica / Influence of surface treatment on the anticorrosive performance of epoxy coatings. A study by electrochemical impedance spectroscopy.*
- 2019-2020. Ricardo Cintra. *Tratamentos de superfície para acabamentos negros em máquinas fotográficas / Surface treatments for black finishes on photograph cameras manufactured by Leica.*
- 2018-2019. Ricardo Mineiro. *Replacement of Cr⁶⁺ on baths for chromium plating / Replacement of Cr⁶⁺ on baths for chromium plating.*
- 2018-2019. Gonçalo Guimarães. *Layered double hydroxides for the corrosion control of steel in reinforced concrete / Layered double hydroxides for the corrosion control of steel in reinforced concrete.*
- 2018-2019. Pedro Silva. *Effect of temperature and oxygen content on the corrosion of hardmetals / Effect of temperature and oxygen content on the corrosion of hardmetals.*
- 2016-2017. Rodrigo Santos. *Nanomateriais com libertação controlada de compostos ativos para inibição da corrosão do aço em betão armado / Nanomaterials with controlled release of active compounds to inhibit corrosion of steel in reinforced concrete.*
- 2015-2016. Diogo Lopes. *Síntese de hidróxidos duplos lamelares para proteção anticorrosiva a partir de partículas de óxido de zinco / Synthesis of layered double hydroxides for anti-corrosion protection from zinc oxide particles.*
- 2014-2015. Carlos Pereira. *Simulação numérica e validação experimental de um processo de deposição eletrolítica de níquel / Numerical simulation and experimental validation of a nickel electrolytic deposition process. (co-supervision with Marcela Reyes).*
- 2013-2014. Pedro Moreira. *Chemical conversion layers based on layered double hydroxides for maritime applications / Chemical conversion layers based on layered double hydroxides for maritime applications.*
- 2013-2014. Diogo Santos. *Preparation of boron doped diamond electrodes for the treatment of waste water / Preparation of boron doped diamond electrodes for the treatment of waste water. (co-supervision with Filipe Oliveira).*
- 2011-2012. Marco Soares. *Cyclic voltammetry of boron-doped diamond thin-films / Cyclic voltammetry of boron-doped diamond thin-films (co-supervision with Filipe Oliveira).*
- 2007-2008. Filipe Pires. *Resistência à corrosão do aço revestido, pela técnica de PVD, com TiN e CrN / Corrosion resistance of coated steel with TiN and CrN using the PVD technique (co-supervision with Prof. Maria Gracinda Ferreira da Silva).*
- 2007-2008. Eduardo Oliveira. *Limites térmicos dos pré-tratamentos anticorrosivos usados nas ligas de alumínio 2024-T3 e 5083 / Thermal limits of anticorrosive pretreatments used on 2024-T3 and 5083 aluminum alloys.*

12. Participation in Master and PhD examination committees

2024 – João Pedro Arrobas Ferreira, *Revestimentos híbridos depositados por CVD+HiPIMS para maquinaria de aços inoxidáveis (Master)*. Jury president. Departamento de Engenharia de Materiais e Cerâmica, Universidade de Aveiro, 18 de Dezembro de 2024.

2024 – Beatriz Ladeira da Silva, *Impacto de detergentes da Mistolin em materiais de uso doméstico: avaliação de desgaste, descoloração e erosão (Master)*. Examiner. Departamento de Química Universidade de Aveiro, 19 de Julho de 2024.

2022 – Filipe Ye Lin, *Development of novel Cd-free Zn based alloys for sacrificial anodes (Master)*. Examiner. Faculdade de Engenharia da Universidade do Porto, 19 de Setembro de 2022.

2022 – Yegor Morozov, *Environmentally-friendly multi-functional additives for reinforced concrete protection (PhD Thesis)*. Instituto Superior Técnico, University of Lisbon, Portugal. External examiner.

2021 – Cátia Sofia Nunes Pereira, *Análise da qualidade e do comportamento anticorrosivo de tintas e vernizes por espectroscopia de impedância eletroquímica*, Master Thesis, Faculdade de Ciências do Porto, Portugal, External examiner.

2021 – Rodrigo Bento Montes, *Acabamentos negros para máquinas fotográficas a partir de deposição de níquel electroless*, Master Thesis, Universidade de Aveiro, Supervisor.

2021 – Luiane Nazareth, *Análise de casos de corrosão da Prio Energy*, Master Thesis, Universidade de Aveiro, Supervisor.

2021 – Rui Miguel da Silva Sampaio, *Electrochemical Sensors for Chloride and pH Monitoring in Reinforced Concrete Structures*, PhD thesis, Universidade de Aveiro, Supervisor.

2020 – Daniela Filipa Rodrigues Santos, *Sensor têxtil baseado em grafeno para monitorização cardíaca / Graphene-Based Textile Sensor for Cardiac Monitoring (Master)*, Mestrado em Materiais e Dispositivos Biomédicos, Universidade de Aveiro, Presidente do Júri.

2017 – Olga Viktorovna Karavai, *Mapping local corrosion parameters using SVET and SIET*, PhD thesis, Universidade de Aveiro, Supervisor.

2016 – Raquel Amaro das Neves, *Estudo da degradação de revestimentos inorgânicos por detergentes comerciais*, Master thesis, Universidade de Aveiro.

2016 – Maryna Taryba, *Boosting the Application of Local Potentiometric Probe Technique for Corrosion Research*, PhD thesis, Instituto Superior Técnico, Lisbon, Portugal. External Examiner.

2016 – Andreia Isabel Granadeiro Cercas Marques, *Study of corrosion at cut edges and at micro-defects on organic-coated electrogalvanized steel by Electrochemical Impedance Spectroscopy and Scanning Electrochemical Techniques*, PhD thesis, Instituto Superior Técnico, Lisbon, Portugal. External Examiner.

2015 – Susete Margarida Gomes Correia, *Estudos da corrosividade de produtos Mistolin nas ligas inox 304 e 316*, Master thesis, Universidade de Aveiro.

2014 – Andrei Stefan Demeter, *Simulation and Validation of Local Measuring Techniques in Corrosion*, PhD thesis performed in cotutelle between the Vrije Universiteit Brussels and Universitatea Technica din Cluj-Napoca. External Examiner.

13. Organization of scientific meetings

SIBAE2024 – XXVI Congresso da Sociedade IberoAmericana de Electroquímica, Lisboa, 19 a 23 de Maio de 2024. Membro da Comissão Científica.

8^{as} Jornadas de Corrosão e Proteção de Materiais, Lisboa, 24 Nov 2022. Membro da Comissão Organizadora e Conselho Técnico-Científico.

Workshop “Long Lasting Reinforced Concrete for Infrastructure under Severe Operating Conditions” in DEGRADA 2020 - 4.º Encontro Luso-Brasileiro de Degradação em Estruturas de Betão – Aveiro, March 19, 2021.

71st Annual Meeting of the International Society of Electrochemistry, 30 Aug – 4 Sept 2020, (Belgrade, Serbia), held online. Co-organizer of Symposium 20: Cutting Edge Electrochemical Measurement Techniques.

Workshop on Steel corrosion of steel in concrete, University of Aveiro, 17-18 September 2018 (organized in the frame of European project LORCENIS, H2020 grant n°685445).

CNMAT 2018 – XV Congreso Nacional de Materiales and I Iberian Meeting of Materials, Salamanca, Spain, July 4-6, 2018. Co-organiser of Symposium “Advanced Corrosion Protection Strategies”.

International Summer School Multifunctional Smart Coatings and Surfaces (2016, 2017, 2018).

ASST2015, VII Aluminium Surface Science & Technology, Madeira Island, Portugal, May 17-2, 2015.
Local organising committee.

EUROCORR 2013 – European Corrosion Congress, Estoril, Portugal, September 1-5, 2013.
Local organising committee.

EUROCORR 2005 – European Corrosion Congress, Lisbon, Portugal, September 4-8, 2005.
Local organising committee.

AETOC'2003 - Workshop on Application of Electrochemical Techniques to Organic Coatings, Sintra, Portugal, October, 22-25, 2003. Local organising committee.

14. Reviewer activities

More than 400 reviews for Corrosion Science, Electrochimica Acta, Journal of the Electrochemical Society, Electrochemistry Communications, Progress in Organic Coatings, Applied Surface Science, Materials Chemistry and Physics, Materials Letters, Surface and Coatings Technology, Thin Solid Films, Electroanalysis, Surface and Interface Analysis, Journal of Solid State Electrochemistry, Corrosion (NACE), Industrial and Engineering Chemistry Research, Journal of the Brazilian Chemical Society, Journal of Materials Research and Technology, Advances in Materials Science and Engineering, Materials and Design, International Journal of Minerals, Metallurgy and Materials, Corrosion Engineering Science and Technology, New Journal of Chemistry, RSC Advances, Analytical Methods, Scientific Reports, Corrosão e Protecção de Materiais, International Journal of Refractory Metals and Hard Materials, Molecules, Bioelectrochemistry, Composites Part B: Engineering, Journal of Building Engineering, Cement and Concrete Composites.

15. Present and past projects

a) University of Aveiro

2024-2028. AIM-NEXT - *Accelerate the design and Insertion of nonCRM hard Materials for Next generation EXTreme applications* (101119887), Horizon-MSCA-2022-DN-01-Doctoral Networks 2022. (01/02/2024 - 31/01/2028). Partners: Universitat Politecnica de Catalunya Spain), Lunds Universitet (Sweden), Seco Tools AB (Sweden) Element Six Limited (Ireland), Rheinisch Westfaelische Technische Hochschule RWTH Aachen (Germany), Universidad Carlos III Madrid (Spain), Universidade de Aveiro (Portugal), Institut Polytechnique de Grenoble (France), Kungliga Tekniska Hogskolan - KTH (Sweden), Durit (Portugal), Hilti (Lichtenstein), Films (Italy), Sandvik (Sweden). Role: Portuguese coordinator and local PhD supervisor.

2024-2026. RESINSURF - *Towards more RESilient, sustainable, competitive and INtelligent electrochemical SURFace treatments*, Interreg Sudoe (01/01/2024 - 31/12/2026). Partners: Fundación CIDETEC (Spain), SAS Ineosurf (France), Universidade de Aveiro, Asociación de Industrias de Acabados de Superficies (Spain), Titania – Ensayos e Proyectos Industriales S.L. (Spain), Smallmateck (Portugal), Chrome Dur Industriel (France), Université de Pau et des Pays de l'Adour (France). Role: team member, supervisor.

2022-2025. ENGINEER - *Civil engineering and geomatics innovative research on heritage*, EU H2020 grant agreement N° 101079377, under the call HORIZON-WIDERA-2021-ACCESS-03, Twinning. Partners: Cyprus University of Technology, Polytechnic University of Milan, University of Aveiro, University College of London. Team member.

2022-2025. ILLIANCE – *Projetos IDT UA-Empresas, Agenda Mobilizadora Para a Inovação Empresarial, Componente C5 do PRR*, Project number 46. Role: Team member, PhD supervisor.

2021-2025. Coat4Life, *Eco-friendly corrosion protective coatings based on smart nanotechnology platforms for a circular economy*, EU Horizon 2020 Marie Skłodowska-Curie grant agreement H2020-MSCA-RISE-2020 n° 101007430. Role: Team member.

PAST PROJECTS

2020-2022. *SafeChrome - Novos revestimentos PVD sobre polímeros, latão e alumínio para substituição de processos de galvanização de Cr(VI)*, POCI-01-0247-FEDER-047092 (01/04/2020 - 31/03/2023).

PRIREV - Surface Technology S.A., Laboratório Ibérico Internacional de Nanotecnologia, DOURECA produtos plásticos Lda, Leica - Aparelhos ópticos de precisão, S.A., Universidade de Aveiro. Role: Team member.

2018-2022. *ON-SURF - Coordinate Competences and Technologies in Surface Engineering*. POCI-01-0247-FEDER-024521. Role: Supervisor of pos-doc researchers.

2018-2021. *SMARTAQUA - Development of smart nanostructured layers for sensing corrosion in aquatic structures*, MARTERA/0004/2017 (01/03/2018 – 28/02/2021). Role: Team member.

2018-2021. *DATACOR - Dados inteligentes para desenhar inibidores de corrosão* (POCI-01-0145-FEDER-030256). Universidade de Aveiro. (16/07/2018 – 15/07/2021). Role: Team member.

2016-2020. *LORCENIS - Long Lasting Reinforced Concrete for Energy Infrastructure Under Severe Operating Conditions*. European Community HORIZON 2020 framework programme Grant agreement N° 685445 (01/05/16 - 30/04/20).

Universidade de Aveiro (Portugal), Stiftelsen SINTEF (Norway), National Technical University of Athens (Greece), Helmholtz-Zentrum Geesthacht (Germany), ACCIONA Infrastructure (Spain), CBI Betonginstitutet AB (Sweden), CSIC (Spain), Ghent University (Belgium), Fundación Agustín de Betancourt (Spain) IK4-CIDETEC (Spain), Kværner SAS (Norway), SMALLMATEK – Small Materials and Technologies LDA (Portugal), SIKA AG (Switzerland), KOMSOL AB (Sweden), Dyckerhoff GmbH (Germany), Vattenfall AB (Sweden), ChemStream BVBA (Belgium).). Role: Co-supervisor of 2 PhD students; participation in the consortium meetings.

2016-2020. *SGH - Smart Green Home*, University of Aveiro, BOSCH Cacia, Portugal.

2016-2019. *SELMA - Unveiling the self-healing mechanisms associated with smart nanocontainers* (PTDC/QEQ-QFI/4719/2014). Universidade de Aveiro (01-05-2016 to 30-04-2019).

2016-2018. *HARDCorr - Desenvolvimento de metal duro com elevada resistência ao desgaste e à corrosão*. Universidade de Aveiro, Faculdade de Engenharia do Porto, DURIT – Metalurgia Portuguesa do Tungsténio, Lda. *Funding: P2020*. Role: Team member supervising the corrosion studies..

2015-2018. *SMARCOAT - Development of Smart Nano and Microcapsulated Sensing Coatings for Improving of Material Durability/Performance*. MSCA-RISE-2014 - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) project ID 645662. Role: Team member.

2015-2018. *MULTISURF - Multi-functional Metallic Surfaces via Active Layered Double Hydroxide Treatments*. MSCA-RISE-2014 - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE) project ID 645676. Role: Team member.

2014-2016. *SMART-MATERIALS - Análise e mitigação de casos de corrosão nas redes eléctricas da EDP Distribuição*. Universidade de Aveiro, EDP Distribuição. Coordinator.

2012-2015. *CONVPROTECT - Filmes de conversão nanoestruturados multifuncionais baseados em hidróxidos duplos lamelares para proteção contra corrosão de estruturas para aplicação aeronáutica* (PTDC/CTM-MAT/1515/2012) (01/06/12 to 31/05/15). Role: Team member.

2011-2014. *ATCORAS - Modelling of atmospheric corrosion of steel protected by aluminium based alloys, applied by hot dip processing* (RFS-PR-10107). Partners: Universidade de Aveiro, Instituto Superior Técnico, Vrije Universiteit Brussel (Belgium), OCAS NV (Belgium), ArcelorMittal Maizières Research SA (France), Elsyca NV (Belgium). (01/06/11 to 31/05/14). Local coordinator.

2011-2014. *BIOCORDIAN - Ultramicroelectrodes de SECM em diamante nanocristalino para biologia e corrosão / Nanocrystalline diamond SECM ultramicroelectrodes for biology and corrosion* (PTDC/CTM-MET/113645/2009). Partners: Universidade de Aveiro, Instituto Superior Técnico (Lisboa), INMETRO-DIMAT (Brasil), Centro Universitário Vila Velha (Brasil). (01/03/2011 to 28/02/14). Role: Team member.

2011-2013. *Siset - Enhancing Scanning Ion-Selective Electrode Technique* (International Research Staff Exchange Scheme of the Marie Curie Action for People n° 269282 under the SEVENTH FRAMEWORK PROGRAMME of the European Commission). Partners: Universidade de Aveiro, Instituto Superior Técnico (Lisboa, Portugal), Vrije Universiteit Brussel (Belgium), Belarusian State University (Belarus) Institute of Metal Research of Chinese Academy of Science (China). (01/12/11 to 30/11/13). Role: Team member.

2010-2013. *Corrosão e proteção contra a corrosão em sistemas multimateriais / Corrosion and corrosion protection in multi-material systems* (PTDC/CTM/108446/2008). Universidade de Aveiro (01/05/10 to 30/04/13).

2008-2011. *KINSREP - Prediction of the kinetics of self-repair of forming-induced defects on thin functional primers for advanced automotive applications* (RFSR-CT-2008-00028). Partners: Instituto Superior Técnico (Portugal), Universitaet Paderborn (Germany), Dortmunder Oberflaechencentrum GmbH (Germany), Voestalpine Stahl GmbH (Austria), Centro Sviluppo Materiali (Italy), Universidade de Aveiro (Portugal), Salzgitter Mannesmann Forschung GmbH (Germany). (01/07/08 to 30/06/11). Role: Team member.

2008-2011. *Detectando a micro-distribuição de espécies químicas em solução na vizinhança de metais activos / Sensing the micro-distribution of chemical species in solution close to active metals* (PTDC/CTM/66041/2006). Partners: University of Aveiro and Instituto Superior Técnico (Lisbon). (01/01/08 to 30/06/11). Coordinator.

2008-2011. *Revestimentos protectores auto-reparáveis com nano-reservatórios “inteligentes” de inibidores anticorrosivos / Self-healing protective coatings with “intelligent” nanoreservoirs of corrosion inhibitors* (PTDC/CTM/65632/2006). Universidade de Aveiro (01/03/08 to 30/06/11). Role: Team member.

2004-2007. *PRIMEFORM - Formability and Self-Repair Properties of Advanced Weldable Primers* (RFS-CR-04031). Partners: Max Planck Institut für Eisenforschung GmbH (Germany), DOC Dortmunder Oberflächencentrum GmbH (Germany), Voestalpine Stahl GmbH (Austria), Instituto Superior Technico (Portugal), Universidade de Aveiro (Portugal) Centro Sviluppo Materiali (Italy). (01/07/04 to 30/06/07). Role: Team member.

2005-2008. - *MULTIPROTECT Advanced environmentally friendly multifunctional corrosion protection by nanotechnology* (FP6 - 11783-2). Partners: Leibniz-Institut für Neue Materialien (Germany), Bühler AG (Switzerland), European Research and Project Office GmbH (Germany), Fraunhofer Gesellschaft, IPA Stuttgart (Germany), T.T. Ferioli & Gianotti SpA, Divisione Genta Ptatit (Italy), National Center for Scientific Research “Demokritos” (Greece), Technion-Israel Institute of Technology (Israel), EADS Deutschland, Corporate Research Center Germany (Germany), CASTI, Centro per L’assistenza Scientifica e Tecnologica alle Imprese (Italy), FIAT, Società Consortile per Azioni (Italy), INASMET (Spain), Instituto de Soldadura e Qualidade (Portugal), Netherlands Organisation for Applied Scientific Research (The Netherlands), Liebherr-Aerospace Lindenberg (Germany), Servo Hydraulic Lod / Israel Aircraft Industry Ltd. (Israel), SHL-Alubin Group (Israel), Forschungsinstitut für Edelmetalle und Metallchemie (Germany), Universidade de Aveiro (Portugal), University of UDINE (Italy), Consejo Superior de Investigaciones Cientificas (Spain), University of Manchester, Institute of Science and Technology (United Kingdom), Elastotec (Germany), Centro Sviluppo Materiali S.p.A. (Italy), Technical University of Poland (Poland), Hellenic Aerospace Industry S.A. (Greece), Plalam SpA, Lamiera Prelaccata e Plasticata (Italy), Cromosphere (Italy), Institute of Physical Chemistry (Romania), Typoplast (Bulgaria), University of Chemical Technology and Metallurgy (Bulgaria), ARC Seibersdorf Research GmbH (Austria). (01/03/05 to 28/02/08). Role: Team member.

b) Instituto Superior Técnico, Lisboa, Portugal

2004-2007. *CUT-EDGE – Self-healing at the cut-edge of coil coated galvanized steel* (RFSR-CT-2004-21). Partners: Instituto Superior Técnico (Portugal), Max Plank-Institut für Eisenforschung GmbH (Germany), Arcelor Research SA (France), Dortmunder OberflächenCentrum (Germany), Fundación ITMA (Spain), VoestAlpine AG (Austria), Arcelor Research Liège SCRL. (01/07/04 to 31/12/07).

1999-2002. Project ECSC 7210-PR-189 - *Investigation of Damaging Mechanisms of Coil-Coated Sheet During Forming in Order to Enhance the Performance Predictability of Finished Parts*. Partners: Instituto Superior Técnico (Portugal), ThyssenKrupp Stahl (Germany), Max Plank Institut für Eisenforschung (Germany) and VoestAlpine Stahl Linz GmbH (Austria). (01/07/99 to 30/06/02). PhD student.

c) Faculdade de Ciências do Porto, Portugal

1996-1998. P-1373 *PRIMAQUA, Reducing the environmental impact of anticorrosive primers – Development of water-based formulations*. Partners: Fábrica de Tintas 2000 Lda (Portugal) and Oporto Faculty of Sciences (Portugal). Master student

16. Publications

a) Thesis and dissertation

Estudo Electroquímico do Efeito da Deformação Mecânica no Desempenho Anticorrosivo da Banda Pré-pintada, PhD thesis, Instituto Superior Técnico, Universidade Técnica de Lisboa, 2005.

Comportamento Anticorrosivo de Tintas de Base Aquosa Aplicadas em Substratos Ferrosos - Estudo por Espectroscopia de Impedância Electroquímica, Master Thesis, Faculdade de Ciências do Porto, 1999.

b) Book Chapters

Alexandre Bastos, *Application of SVET/SIET Techniques to Study Healing Processes in Coated Metal Substrates*, L. Klein et al. (Eds.), Handbook of Sol-Gel Science and Technology 2nd Ed, Springer International Publishing AG, 2018.

A.C. Bastos, J. Tedim, M.G.S. Ferreira, *Corrosion protection by nanostructured coatings*, Chapter 11 in Handbook of Modern Coating Technologies, Volume 1 - Fabrication Methods and Functional Properties, Edited by M. Aliofkhazraei, N. Ali, M. Chipara, N.B. Laidani, J.Th.M.De Hosson, Elsevier, Amstredam, Netherlands, p. 281-307, 2021.

A.C. Bastos, M.G.S. Ferreira, *Application of the scanning vibrating electrode technique to the characterization of modern coatings*, Chapter 1 in Handbook of Modern Coating Technologies, Volume 2 - Advanced Characterization Methods, Edited by M. Aliofkhazraei, N. Ali, M. Chipara, N.B. Laidani, J.Th.M.De Hosson, Elsevier, Amstredam, Netherlands, p. 1-43, 2021.

c) Articles in journals included in the Science Citation Index

[100] *Remarks on the formulation of water-borne primers and their performance assessed by EIS*, A.C. Bastos, Progress in Organic Coatings 200 (2025) 109095.

[99] *Corrosion inhibitor from nature: Fundamentals of tannic acid inhibition for AA2024 alloy*, Rúben del Olmo, Alexandre Bastos, Kiryl Yasakau, Alesia Sushkova, Raúl Arrabal, João Tedim, Applied Surface Science, 680 (2025) 161434.

[98] *A comparison of the corrosion behaviour over time in 0.5 M NaCl environment of TiCN spark plasma sintered with and without Si aids*, Cristina Ojalvo, Ana M.R. Senos, Angel L. Ortiz, Alexandre C. Bastos, Journal of the European Ceramic Society 45 (2025) 116837.

[97] *Niobium Oxide Thin Films Grown on Flexible ITO-Coated PET Substrates*, Alice Marciel, Alexandre Bastos, Luiz Pereira, Suresh Kumar Jakka, Joel Borges, Filipe Vaz, Marco Peres, Katharina Lorenz, Arijeta Bafti, Luka Pavic, Rui Silva, Manuel Graça, Coatings 14 (2024) 1127.

[96] *Effect of ZnAl-NO₂ LDH on chloride entrapment and protection of iron reinforcement in mortar samples*, R.S. Sampaio, C. Gomes, A.C. Bastos, M.G.S. Ferreira, Journal of Building Engineering 96 (2024) 110535.

[95] *Comparative Study of Corrosion Behaviour of Several Metals and Alloys Exposed to Brines*, L. Sarinho, M. I. Nunes, P. Carvalho, J. P. Ribeiro, C. Marques, A. C. Bastos, Chapter 30 in N.S. Caetano, Sustainable Development with Renewable Energy. ICEER 2023. Environmental Science and Engineering. Springer, Cham., pp 379-388, https://doi.org/10.1007/978-3-031-54394-4_30.

[94] *Prediction of hardmetal corrosion based on the binder response*, A.M. Ferro Rocha, A.M. Santos, R. Mineiro, P. Pereira, J. Sacramento, A.M.R. Senos, A.C. Bastos, International Journal of Refractory Metals and Hard Materials 118 (2024) 106480.

[93] *The combination of electrodeposited chromium (III) and PVD as an industrial viable solution for the replacement of electrodeposited chromium (VI)*, X.L. Pinheiro, K. Oliveira, J. Santos, A.V. Girão, A.C. Bastos, M. Sousa, D. Baptista, S. Gomes, R. Lobo, P. Oliveira, A. Monteiro, J.P. Teixeira, M. Monteiro, P.A. Fernandes, F.J. Oliveira, P.M.P. Salomé, Process Safety and Environmental Protection 182 (2024) 727–739.

[92] *Development of WC-NiCrMo hardmetals*, P. Pereira, A.M. Ferro Rocha, A.C. Bastos, F.J. Oliveira, L.M. Vilhena, A. Ramalho, J. Sacramento, L.F. Malheiros, A.M.R. Senos, International Journal of Refractory Metals and Hard Materials 112 (2023) 106147.

- [91] *Brushite mineralised Scots pine (Pinus sylvestris L.) sapwood – revealing mineral crystallization within a wood matrix by in situ XRD*, Edita Garskaite, Giedrius Balciunas, Marian Drienovsky, Denis Sokol, Dick Sandberg, Alexandre C. Bastos and Andrei N. Salak, *RSC Advances* 13 (2023) 5813.
- [90] *Combination of layered-based materials as an innovative strategy for improving active corrosion protection of carbon steel*, Débora Abrantes Leal, Isabel Sousa, Alexandre C. Bastos, João Tedim, Fernando Wypyc, Cláudia Eliana Bruno Marino, *Surface and Coatings Technology* 473 (2023) 129972.
- [89] *Effect of different acidic media on the corrosion behaviour of hardmetals with Ni-based binders*, P. Pereira, A.M. Ferro Rocha, J. Sacramento, F.J. Oliveira, L.F. Malheiros, A.M.R. Senos, A.C. Bastos, *International Journal of Refractory Metals and Hard Materials* 110 (2023) 106019.
- [88] *Layered double hydroxides for corrosion-related applications—Main developments from 20 years of research at CICECO*, João Tedim, Tiago L. P. Galvão, Kiryl A. Yasakau, Alexandre Bastos, José R. B. Gomes and Mario G. S. Ferreira, *Frontiers in Chemistry* 10 (2022) 1048313.
- [87] *Atomic layer deposition of nanometric alumina for corrosion protection of heterogeneous metallic surfaces – The case of aeronautical grade aluminium alloy 2024-T3*, Marco P. Oliveira, Ricardo M. Silva, Kiryl A. Yasakau, Alexandre Bastos, Silvar Kallip, Mikhail L. Zheludkevich, Rui F. Silva, Mário G.S. Ferreira, *Corrosion Science* 209 (2022) 110773.
- [86] *New Sensors for Monitoring pH and Corrosion of Embedded Steel in Mortars during Sulfuric Acid Attack*, Rui Sampaio, Alexandre Bastos, Mário Ferreira, *Sensors* 22 (2022) 5356.
- [85] *New Bis-Cyclometalated Iridium(III) Complexes with β -Substituted Porphyrin-Arylbipyridine as the Ancillary Ligand: Electrochemical and Photophysical Insights*, Nuno M. M. Moura, Vanda Vaz Serra, Alexandre Bastos, Juliana C. Biazotto, Kelly A. D. F. Castro, Maria Amparo F. Faustino, Carlos Lodeiro, Roberto S. da Silva, Maria da Graça P. M. S. Neves, *International Journal of Molecular Sciences* 23 (2022) 7606.
- [84] *Electrochemical characterization and degradation of carbon fibre reinforced polymer in quiescent near neutral chloride media* Stanley Udochukwu Ofoegbu, Marcela C. Quevedo, A.C. Bastos, M.G.S. Ferreira, M.L. Zheludkevich, *NPJ Materials Degradation* 6 (2022) 49.
- [83] *On Demand Release of Cerium from an Alginate/Cerium Complex for Corrosion Protection of AISI1020 and AA2024 Substrates*, Bruno C. da Silva, Alexandre C. Bastos, João Tedim, Mário G. S. Ferreira, Cláudia E. B. Marino and Izabel C. Riegel-Vidotti, *Journal of the Brazilian Chemical Society* 33 (2022) 987.
- [82] *Reduced Graphene Oxide—Polycarbonate Electrodes on Different Supports for Symmetric Supercapacitors*, Olena Okhay, Alexandre Cunha Bastos, Kateryna Andreeva, Sampo Tuukkanen, Alexander Tkach, *C* 8 (2022) 12.
- [81] *[Corrosion resistance of WC hardmetals with different Co and Ni-based binders* P. Pereira, A.M. Ferro Rocha, J. Sacramento, F.J. Oliveira, A.M.R. Senos, L. F. Malheiros, A.C. Bastos, *International Journal of Refractory Metals and Hard Materials* 104 (2022) 105799.
- [80] *Ni-Fe layered double hydroxides for oxygen evolution Reaction: Impact of Ni/Fe ratio and crystallinity*, Manon Wilhelm, Alexandre Bastos, Cristina Neves, Roberto Martins, João Tedim, *Materials & Design* 212 (2021) 110188.
- [79] *Sacrificial protection of Mg-based resorbable implant materials by magnetron sputtered Mg5Gd alloy coating: a short-term study*, K.A. Yasakau, A.C. Bastos, D. Haffner, E. Quandt, F. Feyerabend, M.G.S. Ferreira, M.L. Zheludkevich, *Corrosion Science* 189 (2021) 109590.
- [78] *Nanostructured Black Nickel Coating as Replacement for Black Cr(VI) Finish*, Marina M. Mennucci, Rodrigo Montes, Alexandre C. Bastos, Alcino Monteiro, Pedro Oliveira, João Tedim, Mário G. S. Ferreira, *Applied Sciences* 11 (2021) 3924.
- [77] *The Stability and Chloride Entrapping Capacity of ZnAl-NO₂ LDH in High Alkaline/Cementitious Environment*, Zahid M. Mir, Celestino Gomes, Alexandre C. Bastos, Rui Sampaio, Frederico Maia, Cláudia Rocha, João Tedim, Daniel Höche, M.G.S Ferreira, Mikhail L. Zheludkevich, *Corrosion and Materials Degradation*, 2 (2021) 78-99.
- [76] *Corrosion resistance and tribological behavior of ZK30 magnesium alloy coated by plasma electrolytic oxidation*, Joel da Silva Rodrigues, Leonardo Marasca Antonini, António Alexandre da Cunha Bastos, Jie Zhou, Célia de Fraga Malfatti, *Surface and Coatings Technology* 410 (2021) 126983.

- [75] *Molybdenum Oxide Thin Films Grown on Flexible ITO-Coated PET Substrates*, Alice Marciel, Manuel Graça, Alexandre Bastos, Luiz Pereira, Jakka Suresh Kumar, Joel Borges, Filipe Vaz, Marco Peres, Sergio Magalhães, Katharina Lorenz, Rui Silva, *Materials* 14 (2021) 821.
- [74] *The effect of Cr content on the corrosion resistance of WC-Ni-Cr-Mo composites*, R.F. Santos, A.M. Ferro Rocha, A.C. Bastos, J.P. Cardoso, F. Rodrigues, C.M. Fernandes, J. Sacramento, M.G.S. Ferreira, A.M.R. Senos, C. Fonseca, M.F. Vieira, L.F. Malheiros, *International Journal of Refractory Metals and Hard Materials* 95 (2021) 105434.
- [73] *Corrosion behavior of AA2024-T6 and AA6065-T6 alloys in reline*, Mihael Bucko, Alexandre C. Bastos, Kiryl A. Yasakau, Mario G.S. Ferreira, Jelena B. Bajat, *Electrochimica Acta* 357 (2020) 136861.
- [72] *A corrosion evaluation of mild carbon steel in reclaimed refinery stripped sour water*, Pedro D.A. Bastos, Alexandre C. Bastos, Mário G.S. Ferreira, Maria António Santos, Pedro J. Carvalho, João G. Crespo, *Journal of Environmental Management* 272 (2020) 111080.
- [71] *Hexacyanoferrate-Intercalated Layered Double Hydroxides as Nanoadditives for the Detection of Early-Stage Corrosion of Steel: The Revival of Prussian blue*, Manon Wilhelm, Marcela C. Quevedo, Alesia Sushkova, Tiago L. P. Galvão, Alexandre Bastos, Mário Ferreira, João Tedim, *European Journal of Inorganic Chemistry* (2020) 2063–2073.
- [70] *Numerical and Experimental Analysis of Self-Protection in Reinforced Concrete due to Application of Mg–Al–NO₂ Layered Double Hydroxides*, Zahid Mohammad Mir, Alexandre Bastos, Celestino Gomes, Urs Mueller, Maria Cruz Alonso, Kristina Villar, Miguel P. Rabade, Frederico Maia, Cláudia M. Rocha, Philippe Mainçon, Daniel Höche, Mario G. S. Ferreira, Mikhail L. Zheludkevich, *Advanced Engineering Materials* (2020) 2000398.
- [69] *Use of Zn-Al-Layered Double Hydroxide (LDH) to Extend the Service Life of Reinforced Concrete*, Celestino Gomes, Zahid Mir, Rui Sampaio, Alexandre Bastos, João Tedim, Frederico Maia, Cláudia Rocha, Mário Ferreira, *Materials*, 13 (2020) 1769.
- [68] *Recent Advances on the Application of Layered Double Hydroxides in Concrete—A Review*, Zahid M. Mir, Alexandre Bastos, Daniel Höche, Mikhail L. Zheludkevich, *Materials*, 13 (2020) 1426.
- [67] *Microstructural characterization and corrosion resistance of WC-Ni-Cr-Mo composite – The effect of Mo*, R.F. Santos, A.M. Ferro Rocha, A.C. Bastos, J.P. Cardoso, F. Rodrigues, C.M. Fernandes, J. Sacramento, M.G.S. Ferreira, A.M.R. Senos, C. Fonseca, M.F. Vieira, Luís F. Malheiros, *International Journal of Refractory Metals & Hard Materials* 86 (2020) 105090-7.
- [66] *PMMA-SiO₂ organic-inorganic hybrid coating application to Ti-6Al-4V alloy prepared through the sol-gel method*, Joseane A. Santana, Sandra R. Kunst, Cláudia T. Oliveira, Antonio A. Bastos, Mario G.S. Ferreira, Victor H.V. Sarmento, J. Braz. Chem. Soc. 31 (2020) 409-420.
- [65] *Corrosion Inhibition and Acceleration by Rare Earth Ions in Galvanic Couples*, M. Oliveira, A.C. Bastos, S. Kallip, T. Hack, M.L. Zheludkevich, M.G.S. Ferreira, *Journal of the Electrochemical Society*, 166 (2019) C642-C648.
- [64] *Evaporation of Electrolyte During SVET Measurements: The Scale of the Problem and the Solutions*, A.C. Bouali, A.C. Bastos, S.V. Lamaka, M. Serdechnova, M.G.S. Ferreira, M.L. Zheludkevich, *Electroanalysis* 31 (2019) 2290-2298.
- [63] *Atmospheric corrosion in two different urban environments in Portugal: results of one-year exposure*, Fábio Vidal, Romeu Vicente, A.C. Bastos, A.M. Ferro Rocha, J. Mendes Silva, *Corrosion Engineering, Science and Technology*, 57 (2019) 614-626.
- [62] *Layered Double Hydroxide Clusters as Precursors of Novel Multifunctional Layers: A Bottom-Up Approach*, Cristina S. Neves, Alexandre C. Bastos, Andrei N. Salak, Maksim Strykevich, Daisy Rocha, Mikhail L. Zheludkevich, Angela Cunha, Adelaide Almeida, João Tedim, Mário G.S. Ferreira, *Coatings* 9 (2019) 328.
- [61] *Corrosion protection of steel cut-edges by hot-dip galvanized Al(Zn,Mg) coatings in 1 wt% NaCl: Part II. Numerical simulations*. Olga Dolgikh, Hans Simillion, Sviatlana V. Lamaka, Alexandre C. Bastos. Huibin B. Xue, Maryna G. Taryba, Andre R. Oliveira, Christian Allély, Bart Van Den Bossche, Krista Van Den Bergh, Joost De Strycker, Johan Deconinck, *Materials and Corrosion* 70 (2019) 780.
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- [22] *The Scanning Vibrating Electrode Technique - Background and Applications*, M.F. Montemor, A.C. Bastos, Oral communication, International Workshop: "Application of Electrochemical Techniques to Organic Coatings - AETOC'09", Grado, Italy, April 15-18, 2009.
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- [19] *Application of SVET/SIET Techniques to Study Healing Processes in Corroding Micro-confined Defects*, M.L. Zheludkevich, A.C. Bastos, K.A. Yasakau, M.G.S. Ferreira, S.V. Lamaka, 17th ICC International Corrosion Congress, NACE International, Las Vegas, 6 - 10 October, 2008.
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- [16] *Hybrid Silane Coatings Modified With Nano Additives Impregnated With Corrosion Inhibitors: A Synergistic Combination to Hinder Electrochemical Activity Of Metallic Substrates Exposed to Chloride-Containing Environments*, M.F. Montemor, S.V. Lamaka, M.L. Zheludkevich, A.C. Bastos, M.G.S. Ferreira, 59th Annual Meeting of the International Society of Electrochemistry, Sevilla, Spain, 7-12 September, 2008.
- [15] *Corrosion Behaviour of Weldable Primers for Automotive Applications*, M.F. Montemor, A.M.P. Simões, P. Cecílio, A.C. Bastos, M.L. Zheludkevich, M.G.S. Ferreira, Oral communication, EUROCORR2007, European Corrosion Congress, Friburg, Germany, September 9-13, 2007.
- [14] *Study of Self-healing of the Defects in the Coating by EIS*, M.L. Zheludkevich, K. A. Yasakau, A. C. Bastos, O.V. Karavai, M.G.S. Ferreira, Oral communication, International Workshop: "Application of Electrochemical Techniques to Organic Coatings - AETOC'07", Baiona, Spain, April 18-20, 2007.
- [13] *The Use of Electrochemical Test Methods for the Evaluation of Inhibited Organic-Inorganic Hybrid Coatings*, D. Raps, T. Hack, J. Wehr, M.L. Zheludkevich, A. C. Bastos, O. Nuyken, Oral communication, International Workshop: "Application of Electrochemical Techniques to Organic Coatings - AETOC'07", Baiona, Spain, April 18-20, 2007.
- [12] *A SVET Investigation of the Galvanic Corrosion of an Iron/Zinc Couple Immersed in Aqueous 0.1 M Na₂SO₄*, Y. González-García, A.M. Simões, A.C. Bastos, R.M. Souto, paper n° 30, Oral communication, EMCR2006 - Electrochemical Methods in Corrosion Research, Dourdan, France, June 18 - 23, 2006.
- [11] *An XPS Study on the Effect of Chromate Pigment Extract on Zinc and Iron Substrates*, A.M.P. Simões, A.C. Bastos, M.F. Montemor, Oral communication, EUROCORR2005, European Corrosion Congress, Lisbon, Portugal, September 2005.

- [10] *A Comparative Study Between Cr(VI)-containing and Cr-free Films for Coil-Coating Systems*, R.G. Duarte, A.C. Bastos, A. S. Castela, M.G.S. Ferreira, Oral communication, International Workshop: “Application of Electrochemical Techniques to Organic Coatings”, Sintra, Portugal, October 2003.
- [9] *Potential Alternatives to Cr VI Based Pre-Treatments on Aluminium and Galvanised Steel*, A.C. Bastos, R. G. Duarte, A. Cabral, M.F. Montemor, A.M. Simões, M.G. S. Ferreira. Keynote Lecture, 54th Annual Meeting of International Society of Electrochemistry, Brasil, September 2003.
- [8] *Formability of Organic Coatings - An Electrochemical Approach*, A.C. Bastos, A.M. Simões. Oral communication, Paper 536, 54th Annual Meeting of International Society of Electrochemistry, S. Pedro, Brasil, August 31- September 5, 2003.
- [7] *Formability of Organic Coatings - An Electrochemical Approach*, A.C. Bastos, A.M. Simões. Oral communication, Invited Lecture, Corrosion 2003 - Research in Progress Symposium, San Diego, USA, March, 16-20, 2003.
- [6] *The Use of Organic Corrosion Inhibitors in Concrete. An Approach to the Inhibition Mechanism*, H.E. Jamil, M.F. Montemor, A.C. Bastos, R. Boulif, A. Shriiri, M.G.S. Ferreira. Oral communication, VIII International Symposium on Electrochemical Methods in Corrosion Research (EMCR2003), Belgique, May, 2003.
- [5] *Contribution a l'Étude d'Inhibition de la Corrosion du E24 em Milieu HCl 1M au Moyen des Methodes d'Analyse de Surface*, D. Chebabe, Z. Ait Chikh, K. Rahmouni, N. Hajjaji, A. Srhiri, M.F. Montemor, M.G.S. Ferreira, A.C. Bastos. Panel Communication, Deuxième Rencontre Nationale sur L'Electrochimie, Casablanca, Maroc, October 2002.
- [4] *Assessment of Corrosion Behaviour of Galvanised Steel Treated with Rare Earth Salts*, M.F. Montemor, A. C. Bastos, A.M. P. Simões, M.G.S. Ferreira. Oral communication, 15th International Corrosion Congress, Granada, Spain, 2002.
- [3] *Mecanismo de Protecção Anti-corrosiva dos Pigmentos de Cromato em Revestimentos Orgânicos*, A. M. Simões, L. Ferney, A.C. Bastos, J.H. Panqueva. Oral communication, XV Congresso da Sociedade Ibero-Americana de Electroquímica (SIBAE 2002), Évora, Portugal, 2002.
- [2] *Effect of Uniaxial Strain on the Anticorrosive Performance of Coil-Coatings*, A.M. Simões, A.C. Bastos, M.G. Ferreira. Poster Communication, 5th International Symposium on Electrochemical Impedance Spectroscopy, Italy, 2001.
- [1] *Interpretação da natureza da ligação química Na-F em termos das componentes da sua energia de interacção*, A. Bastos, A. Melo, M.J. Ramos, Poster Communication, 2^o Encontro Nacional de Química- Física, Oporto, Portugal, 1995.

18. Prizes and awards

- **Best communication** in 8^{as} Jornadas de Corrosão e Protecção de Materiais, Lisbon, November 24th, 2022, *Smart Coating for Detection of Early-Stage Corrosion of Steel*, Alesia Sushkova, Manon Wilhelm, Rodrigo Montes, Cristina Neves, Marcela C. Quevedo, Alexandre Bastos, Mário G.S. Ferreira, João Tedim.
- **Best poster award in CNMAT2018** - XV Congreso Nacional de Materiales and I Iberian Meeting on Materials Science Salamanca, Spain, July 4-6, 2018. *Corrosion of three propellers in a boat operating in Ria de Aveiro (Portugal)*, A.C. Bastos, C. Lemos, O. Karavai, M. Starykevich, A. Rocha, D. Vieira, M. Oliveira, R. Sampaio, C. Gomes, M.G.S. Ferreira.
- **Prize Money from Sociedade Portuguesa de Electroquímica to travel to SIBAE2004**. XVI Congresso da Sociedade Ibero-Americana de Electroquímica (SIBAE 2004), San José, Costa Rica, Feb. 2004.
- **Best poster in EIS2001** - 5th International Symposium on Electrochemical Impedance Spectroscopy, Italy, 2001. *Effect of Uniaxial Strain on the Anticorrosive Performance of Coil-Coatings*, A.M. Simões, A.C. Bastos, M.G. Ferreira.
- **2003. Prémio AICOP** - Associação Ibero-americana de Corrosão e Protecção. A.C. Bastos.
- **Best paper and best communication** in 2^{as} Jornadas da Revista “Corrosão e Protecção de Materiais” Lisbon, Portugal, 2000. *Corrosão em Sistemas Pré-Pintados Deformados por Estampagem – Estudo por Impedância Electroquímica*, A.C. Bastos, A.M.P. Simões, M.G.S. Ferreira.

19. Complementary education

- Online course: Corrosion: Fundamentals and Experimental Methods, Fontana Corrosion Center, Ohio State University, USA, May 1-5, 2023.
- ECS Short Course: Basic Impedance Spectroscopy (online), Mark E. Orazem, May 29, 2022.
- ECS Short Course: Advanced Impedance Spectroscopy (online), Mark E. Orazem, October 10 and 11, 2021.
- ECS Short Course: Fundamentals of Electrochemistry: Basic Theory and Thermodynamic Methods (online), with Jamie Noel, September 19-20, 2021.
- Workshop on Electrochemical Measurements (online), The Ernest B. Yeager Center for Electrochemical Sciences, Case Western Reserve University, Cleveland, Ohio, USA, August 16-20, 2021.
- Introduction to the GWB Community Edition, Virtual (hands-on) workshop, February 22–24, 2022.
- Reactive Transport Modeling, GWB (hands-on) Virtual Workshop, November 30 - 2 December 2021.
- Kinetic Reaction Modeling, GWB (hands-on) Virtual Workshop, 20-21 October 2021.
- Geochemical Reaction Modeling, GWB (hands-on) Virtual Workshop, 31 August - 2 September 2021.
- Introduction to Geochemical Modeling, GWB (hands-on) Virtual Workshop, 3 - 4 March 2021.
- Curso de Controlo de Qualidade, Inspeção e Normalização em Corrosão e Proteção de Materiais (online), Divisão Técnica de Corrosão e Protecção de Materiais (DTCPM) da Sociedade Portuguesa de Materiais (SPM), 7 - 8 de Outubro de 2020.
- Formação Pedagógica Inicial de Formadores B-Learning (90 horas), Jan-Mar 2016.
- 40 hours Course “Synthesis, Properties and Applications of Polymers”, Univ. Aveiro, Nov. 2007 - April 2008.
- 40 hours Course “Colloids, Surfaces and Interfaces”, Universidade de Aveiro, November 2006 - March 2007.
- “International School on Structural Characterization of Nanostructures”, ISSCN’07, Universidade de Aveiro, January 25-27, 2007.
- Seminar “Nanotechnologies in Construction”, Universidade de Aveiro, July 3, 2006.
- Workshop “Revestimentos Rumo ao Futuro”, Universidade de Aveiro, March 31, 2006.
- Training period with SECM. Integrated portuguese-spanish action n° E53/03: “Electrochemical and nanoscopic study of metal surfaces chemically modified with organic films to inhibit corrosion”. Department of Physical-Chemistry of the Chemistry Faculty of University of La Laguna, Tenerife, Canary Islands, Spain. Nov. 2003.
- On-line “Introduction to Corrosion, Module C0”, UMIST - University of Manchester Institute of Technology, Corrosion and Protection Center, from February to June 2003.
- 2nd Interdisciplinary Solar System Summer School, Lisbon Astronomic Observatory, Lisbon, August, 2001.
- Training period with SVET. Materials Science Department, Brookhaven National Laboratory, Long Island, New York, USA, with H. S. Isaacs and A. Shipley, January 2001.
- Short term course, “Quantitative Image Analysis in the Characterization of Materials Microstructure”, CEMUP, Porto, Portugal, 2000.
- Intensive Program Course, “Interfacial Electrochemistry and Electrocatalysis – Recent Development Related to New Physical in situ Characterizations”, Alicante, September 8-17, 2000.
- Short term course, “Scanning Electron Microscopy and X-ray Microanalysis”, CEMUP, Porto, Portugal, 1997.