PUBBLICATO ALL'ALBO WEB IN DATA 23.11.2023

UNIVERSITA' DEGLI STUDI DI GENOVA

AREA RICERCA, TRASFERIMENTO TECNOLOGICO E TERZA MISSIONE
SERVIZIO RICERCA

D.R. n. 5625

IL RETTORE

- Visto il Decreto Rettorale n. 4951 del 19/10/2023, con il quale è stato indetto il concorso, per titoli, per il conferimento di n. 1 borsa di ricerca post- laurea di tipo consolidator della durata di 3 mesi, eventualmente rinnovabile, dell'importo di € 4.062,00 (quattromilasessantadue/00), per lo svolgimento di una ricerca sul tema: "Contributo alla fabbricazione e caratterizzazione elettrochimica di un microstack a ossidi solidi a struttura innovativa per elettrolisi da acqua di mare", presso il DICCA dell'Università degli Studi di Genova;

- Visto il Decreto Rettorale n. 5457 del 15/11/2023 con il quale è stata costituita la Commissione giudicatrice per il conferimento della suddetta borsa di ricerca;

- Visto il verbale della Commissione giudicatrice del concorso in parola, riunitasi in data 17/11/2023;

- Constatata la regolarità della procedura seguita.

DECRETA

Art. 1

Sono approvati gli atti del concorso di cui in premessa e la seguente graduatoria di merito:

1 . Dott.re Davide Cademartori punti 94/100

Sotto condizione dell'accertamento dei requisiti di cui al bando, è dichiarato vincitore del concorso in parola il Dott.re Davide Cademartori.

Genova, 23.11.2023

IL RETTORE

Responsabile del procedimento: Monica Buffa
Area Ricerca, Trasferimento Tecnologico e Terza Missione
Servizio Ricerca

Firmato digitalmente da:
FEDERICO DELFINO
Università degli Studi di Genova
Firmato il: 21-11-2023 14:30:24
Seriale certificato: 4026429
Valido dal 27-10-2023 al 27-10-2026

DAVIDE CADEMARTORI

SUMMARY OF ONGOING ACTIVITIES

I am currently attending the last year of the **PhD course in Chemical, Materials and Process Engineering** at the University of Genoa. My research project focuses both on experimental and modelling activities. I have been working towards the fabrication and electrochemical testing of innovative Solid Oxide Cells (SOCs) produced by freeze tape casting and analysed both in fuel cell and electrolysis operating mode. Currently, I am developing an electrochemical and microstructural model for freeze tape cast electrodes at the Commisariat à l'Energie Atomique (CEA) of Grenoble, where I will work until the end of August 2023.
In June 2021, my project, **H_2ELM**, has been one the five selected from the Nowtilus initiative for the creation of a **spin-off** in the Ligurian marine environment (**H_2ELM focus:** SOCs fabrication for marine propulsion).
https://wylab.net/club-partner-day/.

CONTACTS

PERSONAL INTERESTS AND ACTIVITIES

- Fuel Cells and Electrolysers
- Renewable Energies and Hydrogen
- Travelling and sharing ideas
- Hiking and outdoor exploration

LANGUAGE SKILLS

- Italian: Native
- English: C1 level
- French: B1 level

SOFTWARE SKILLS

- Office, Matlab, Python, Comsol, Zview, Origin: Intermediate
- SimaPro, AspenPlus, Fluent, Simulink, Codeblocks: Basic

EXTRAS

- Full clean driving license

REFERENCES

PhD Supervisor: M. Paola Carpanese
carpanese@unige.it

EDUCATION

Master's Degree in Chemical and Process Engineering
Polytechnic School, University of Genoa (Italy)
September 2017-March 2020
Final grade: **110/110 CUM LAUDE**

Focus on: chemical plants, multiscale analysis and simulation of chemical processes, chemical reactors and applied kinetics, electrochemical materials and technologies, refinery and petrochemistry, industrial biotechnologies, ceramic materials, local transport phenomena.
Thesis title: *"Fabrication and electrochemical testing of button solid oxide cells"*. Supervisors: Prof. Robert Steinberger-Wilckens, Prof. Maria Paola Carpanese, Dr. Ahmad El-Kharouf. Universities of Genoa and Birmingham.

Bachelor's Degree in Chemical Engineering
Polytechnic School, University of Genoa (Italy)
September 2014 – July 2017
Final grade: **110/110 CUM LAUDE**

Focus on: chemical processes and plants, thermodynamics, electrochemistry, fluid mechanic, corrosion and protection of materials, transport phenomena, materials science, general metallurgy.
Thesis title: *"Electrochemical and structural characterisation of a composite electrolyte based on doped ceria (GDC) and LSGM for fuel cells at intermediate temperatures"*. Supervisors: Prof. Maria Paola Carpanese, Prof. Rodolfo Botter. University of Genoa.

Classical High School Diploma
Liceo Classico Federico Delpino, Chiavari (Italy)
September 2009 – June 2014
Final Grade: **100/100**

ABROAD EXPERIENCES AND COLLABORATIONS

Erasmus+ for Traineeship: Centre for Hydrogen and Fuel Cell Research University of Birmingham (UK)
September 2019 - February 2020
Experimental activity on manufacturing and electrochemical analysis of reversible button solid oxide cells. Team and independent work.

PhD Collaboration: ISTEC CNR, Faenza (It)
November 2021-December 2021 and May 2022-June 2022
Manufacturing of graded porous electrodes for Solid Oxide Cells by the freeze tape casting technique.

PhD Collaboration: Commisariat à l'Energie Atomique (CEA), Grenoble (Fr)
January 2023 - August 2023
Construction of a tailored electrochemical model for graded porous electrodes. Electrochemical testing of innovative fuel electrodes for Solid Oxide Cells.

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RESEARCH SCHOLARSHIPS

I have been the recipient of two research scholarships issued by the department of Civil, Chemical and Environmental Engineering (DICCA) of the University of Genoa:

- ***"Preliminary investigations on perovskite electrodes as candidates for the development of the COELUS project"***, June 2020 – July 2020
  Supervisor: Prof. Maria Paola Carpanese
- ***"Fabrication and electrochemical characterisation of solid oxide co-electrolysis cell components"***, September 2020 – October 2020
  Supervisor: Prof. Maria Paola Carpanese

SCHOLARSHIPS, AWARDS AND OTHER ACTIVITIES

- Five scholarships from **"Fondazione Arvedi Buschini"**, 2015-2019.
- Scholarship **"Roberta Miglio"** from INSTM, 2021.
- **NOWTILUS – SEA INNOVATION HUB**: business training from the incubator Wylab for the spin-off H_2ELM after contest and selection from Nowtilus stakeholders. Presentation of business plan to the investors. May-Dec 2021.
- Scholarship **"Galileo Galilei – Young Researcher"** from Rotary International Club, 2022.

CERTIFICATES

- Professional qualification certificate, Industrial Engineer, 2020.
- First certificate in English, Level B2, Cambridge Assessment English, 2018.
- Certificate of attendance to "GHG Junior Manager Course", 2019.

PUBLICATIONS IN JOURNALS WITH IMPACT FACTOR

"A High-Performance Co-Free Electrode for Solid Oxide Cells: La0.7Sr0.3Cu0.15Fe0.85O3-δ Synthesis and Characterisation". *Journal of Alloys and Compounds, IF 6.31, 2023.*
Davide Cademartori, Antonio Maria Asensio, Davide Clematis, Juan Felipe Basbus, Massimo Viviani, Sabrina Presto, Antonio Barbucci, M. Paola Carpanese.

"Fabrication and Electrochemical Modelling of 8YSZ and GDC10 Freeze Tape Cast Scaffolds for Solid Oxide Cells (SOCs)". *Journal of the European Ceramic Society, IF 6.364, 2023.*
Davide Cademartori, Elisa Mercadelli, Angela Gondolini, Antonio Maria Asensio, Antonio Bertei, Alessandra Sanson, M. Paola Carpanese

"Calcium doping in double perovskite $SmBa_{1-x}Ca_xCo_2O_{5+\delta}$ to enhance the electrochemical activity of solid oxide cell reversible oxygen electrode". *Journal of Alloys and Compounds, IF 6.31, 2023.*
Antonio Maria Asensio, Davide Clematis, Davide Cademartori, Maria Paola Carpanese, Massimo Viviani, Cristina Carbone, Antonio Barbucci.

"Impregnation of microporous SDC scaffold as stable solid oxide cell BSCF-based air electrode". *Energy. IF 7.147, 2021.*
Antonio Maria Asensio, Davide Clematis, Massimo Viviani, M. Paola Carpanese, Sabrina Presto, Davide Cademartori, Pere L. Cabot, Antonio Barbucci.

"Infiltrated $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$-based electrodes as anodes in solid oxide electrolysis cells". Energies (MDPI). IF 2.707, 2020.
X. M. d'Intignano, D. Cademartori, D. Clematis, S. Presto, M. Viviani, R. Botter, A. Barbucci, G. Cerisola, G. Caboche and M. P. Carpanese.

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"Fuel cells for shipping. An Approach towards Dynamic Safety Assessment". *Chemical Engineering Transactions (AIDIC). IF 0.7, 2022.*
Tomaso Vairo, Davide Cademartori, Maria P. Carpanese, Davide Clematis, Antonio Barbucci, Bruno Fabiano.

"Solid oxide fuel cells for shipping: A machine learning model for early detection of hazardous system deviations". *Process Safety and Environmental Protection, IF 7.51, 2023.*
Tomaso Vairo, Davide Cademartori, Davide Clematis, Maria Paola Carpanese, Bruno Fabiano.

SCIENTIFIC CONFERENCES WITH DELIVERED PRESENTATIONS

Davide Cademartori, Davide Clematis, Antonio Barbucci, Antonio Maria Asensio, Massimo Viviani, Sabrina Presto, M. Paola Carpanese - 12th International Symposium on Electrochemical Impedance Analysis, Germany, 29-30 November 2021, oral presentation.
"Impedance analysis of copper-based perovskite electrodes for reversible solid oxide cells"

Davide Cademartori, Alessandra Sanson, Elisa Mercadelli, Angela Gondolini, M. Paola Carpanese. – SCI2021 Online Congress, 14-23 September 2021, oral presentation.
"Anode-supporting substrates with hierarchical porosity manufactured with freeze tape casting for reversible solid oxide cells"

Davide Cademartori, Davide Clematis, Antonio Maria Asensio, Antonio Bertei, Massimo Viviani, Sabrina Presto, Antonio Barbucci, M. Paola Carpanese – 8th Regional Symposium on Electrochemistry of South-East Europe, 11-15 July 2022, Keynote.
"The Freeze Tape Casting Technique for the Manufacturing of Graded Porous Scaffolds for Solid Oxide Cells: Experimental Activities and CFD Modelling".

Davide Cademartori, Maxime Hubert, Jerome Laurencin, Maria Paola Carpanese – XVIII Ecers congress, 2-6 July 2023, Oral Presentation.
"Microstructural and electrochemical characterization of freeze tape cast fuel electrodes for solid oxide cells (SOCs)".

SCIENTIFIC CONFERENCES WITH POSTER PRESENTATIONS

Davide Cademartori, Davide Clematis, Antonio Barbucci, Antonio Maria Asensio, Massimo Viviani, Sabrina Presto, M. Paola Carpanese. – EIA 2021online congress, 29-30 November 2021.
"Impedance analysis of copper-based perovskite electrodes for reversible solid oxide cells"

Davide Cademartori, Davide Clematis, Antonio Maria Asensio, Elisa Mercadelli, Angela Gondolini, Alessandra Sanson, Antonio Bertei, Massimo Viviani, Sabrina Presto, Antonio Barbucci,M. Paola Carpanese – 32nd Topical Meeting ISE, 19-22 June 2022.
"Freeze Tape Casting for Solid Oxide Cells: Manufacturing and CFD Simulation of Graded Porous Electrodes"

Davide Cademartori, Elisa Mercadelli, Angela Gondolini, Alessandra Sanson, Ahmad El-Kharouf, Robert Steinberger-Wilckens, Davide Clematis, Antonio Maria Asensio, Maria Paola Carpanese – 15th EFCF, 5-8 July 2022.
"Fabrication and CFD modelling of a graded porous scaffold for Reversible Solid Oxide Cells (rSOCs)"

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SCIENTIFIC CONFERENCES AS COAUTHOR

M. Paola Carpanese, Davide Cademartori, Tiziano Freddi, Davide Clematis, Antonio Barbucci, Antonio Maria Asensio, Marco Panizza, Dario Montinaro - SCI2021 Online Congress, 14-23 September 2021.

"Copper-based perovskite electrodes for reversible solid oxide cells"

A.M. Asensio , D. Clematis , D. Cademartori , M. Viviani , S. Presto , M.P. Carpanese, M. Delucchi , M. Panizza , A. Barbucci - *12th International Symposium on Electrochemical Impedance Analysis, Germany, 29-30 November 2021.*

"Infiltration of microporous SDC backbone as stable solid oxide cell BSCF-based air electrode"

MEMBERSHIPS

- ***Italian Chemistry Society – SCI***
- ***International society of electrochemistry – ISE***

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