

# ELEONORA GADDUCCI

*PhD student*

## PROFILE

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As a PhD student, I have been part of Thermochemical Power Group (TPG) of the University of Genoa since October 2018. My activities here started during the Bachelor's and then during the Master's Degree Thesis, where I focused on methanol production first and then on hydrogen technologies. I have now gained a two-year experience on PEM Fuel Cells technology: in this field, I oversee the experimental campaign at the HI-SEA Laboratory of the University of Genoa, which gave birth to three research papers that are now under review; I presented the results of the experimental campaign in international conferences (EFCF2019 – Luzern, July 2019; EFC19 – Napoli, December 2019); I have deepened my knowledge on the evaluation of a single FC and of the system's performance; I can individuate and solve technical issues that may arise from the experimental activity; I am in charge of acquiring and analysing the database from the results of the experimental campaign, to develop test protocols and recovery procedures for PEMFCs; I have built a strong knowledge on PEMFC degradation and I am working on a Matlab instrument to foresee the effects of degradation and then estimate the useful life of a PEMFC. During this experience, I also had the opportunity to improve my skills in other languages (English, Spanish and French) and I approved the national exam to access the Order of the Engineers.

## EDUCATION

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September 2016 – October 2018	<b>Università degli Studi di Genova – Université Savoie-Mont Blanc</b> (Chambéry, France) <b>Double Degree:</b> European Master's in Engineering for Energy and Sustainable Buildings (EMESB), Master's Degree in Energy Engineering. Main fields: renewable energy, fuel cell technologies, electric power systems, power plants, biofuels. Final score: 107/110.
September 2017 – March 2018	<b>Université Savoie-Mont Blanc</b> (France) Winner of <b>Erasmus+</b> scholarship for participation in EMESB to obtain a Double Degree.
September 2012 – March 2016	<b>Università degli Studi di Genova</b> Bachelor's Degree in Industrial Engineering – Environmental and Energy Engineering. Final Score: 102/110.
September 2014 – March 2015	<b>Universidad de Salamanca</b> (Spain). Winner of a scholarship for <b>Erasmus+</b> project at Chemical Engineering school.
2007 – 2012	Liceo “O. Grassi” (Savona). Scientific High School Diploma. Final score: 100/100.

## WORK EXPERIENCE AND PROJECTS

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November 2018 – Current	<b>PhD student at Università degli Studi di Genova</b> Main fields: stationary and transient analysis of the <b>PEM Fuel Cell system</b> of the HI-SEA Laboratory in Savona, data extraction and analysis from experimental tests, study of the correlation between the main parameters of the system.
February – Current	<b>Visiting PhD at IFE – Oslo</b> Collaboration with Institute for Energy Technology in the context of project MoZEES. Development of research areas of common interest for IFE and the University of Genoa concerning PEMFC modelling and understanding of degradation mechanisms. The exchange period in Oslo started on the 3rd of February and had to stop earlier (30th of March) than the initial plan, due to COVID-19 emergency. It will be resumed in the next future.
March 2018 – October 2018	<b>Master's Degree Thesis “Theoretical and experimental study of fuel cells for marine application”.</b> Work developed in the HI-SEA Laboratory of the University of Genoa for assessment of the technology for marine applications. Data extraction, management and processing via Excel and Matlab; study of the system's response under different conditions.
March 2017 – February 2018	<b>200-hour collaboration at Università di Genova</b> Data extraction from software <b>DEMS</b> (Decentralized Energy Management System); data management and processing via Excel; production of Power Points; presentation of the Smart Polygeneration Microgrid (SPM) Project.

September 2015 – March 2016 **Bachelor’s Degree Thesis** “Sustainable Ways for Methanol Production: Thermo-Economic Analysis”: participation in **European Project “MefCO<sub>2</sub>”** (simulation of different plant configurations via a dedicated software; data extraction from load curves; data analysis; etc.).

2013 – Current **Teaching experience** Private lessons to Primary and Secondary School students (Mathematics, Chemistry, Physics). Assistant karate instructor to kids. Flute trainer to kids aged 11 to 23.

## PUBLICATIONS

July 2019 **Proceedings of European Fuel Cell Forum 2019 – Low temperature fuel cells/electrolysers and H<sub>2</sub> processing, Luzern:**  
*Analysis of consequences of cells rupture on PEMFC module performance* (E.Gadducci, L.Magistri, T.Lamberti)  
*Assessment of PEMFC performance for marine application* (E.Gadducci, L.Magistri, T.Lamberti)

September 2019 **Proceedings of SUstainable PolyEnergy Generation and HaRvesting, SUPEHR 2019, Savona:**  
*Design and development of a laboratory for the study of PEMFC system for marine applications* (Borgogna,G., Speranza, E., Lamberti, T., Nicola Traverso, A., Magistri, L., Gadducci, E., Massardo, A.F., Olivieri, P.), <https://doi.org/10.1051/e3sconf/201911302020>

December 2019 **Proceedings of EFC19, Napoli:**  
*Recovery procedure for 30 kW Nuvera Orion PEMFC stacks* (E.Gadducci, T.Lamberti, L.Magistri, A.F.Massardo) – extended abstract  
*Experimental assessment of FCS for marine application* (E.Gadducci, T.Lamberti, L.Magistri, A.F.Massardo) – extended abstract

May 2020 **Submitted and under review:**  
*Recovery procedure for 30 kW Nuvera Orion PEMFC stacks* (E.Gadducci, T.Lamberti, L.Magistri, A.F.Massardo) – full paper  
*Experimental assessment of FCS for marine application* (E.Gadducci, T.Lamberti, L.Magistri, A.F.Massardo) – full paper  
*Lesson learnt from the tuning of a 240 kW PEMFC power plant for shipping employing a stack voltage model* (E.Gadducci, T.Lamberti, L.Magistri, A.F.Massardo)

## SKILLS

**INTERPERSONAL** Self-motivated, capable of working under pressure. Very good organization and communication skills when team working. Enthusiastic about improving skills. Strong sense of multiculturalism and professionalism.

LANGUAGES AND CERTIFICATES	Italian	English	Spanish	French
	Mother tongue	C1	C1	B1
	-	PET, FCE, OLS	DELE	University certification

**INFORMATICS**

Proficient user	<b>Microsoft Windows, Microsoft Office</b>
Independent user	

**DRIVING LICENCE** B

**PERSONAL INTERESTS** Love learning new languages and travelling. Flute player in “Coro Flautistico Savonese Hamelin” and participation in “Orchestre d’Harmonie Municipale de Chambéry (OMH)”. Lindy-hop dancer.