

PERSONAL
INFORMATION**Giulio Guandalini**✉ giulio.guandalini@polimi.it🌐 www.gecos.polimi.it

Sex: Male | Date of birth: 19/02/1988 | Nationality: Italian

APPLIED FOR

Politecnico di Milano – official website

WORK EXPERIENCE

January 2017 – today

Research fellow (RTDa – junior)Politecnico di Milano - via Lambruschini 4A - Milano (Italy)
Energy Department - Group of Energy Conversion Systems (GECOS)

- Innovative biofuel production systems from biomass
- Advanced research on natural gas and hydrogen technologies, fuel cell vehicles
- Cooperation in national and European projects (technical/management)
- Cooperation in private industrial projects (technical)

Sector Biofuels, DME, Hydrogen production technologies, Fuel cells, Natural gas infrastructure, Innovative energy systems

April 2016 – January 2017

Research fellow (Assegnista di Ricerca)Politecnico di Milano - via Lambruschini 4A - Milano (Italy)
Energy Department - Group of Energy Conversion Systems (GECOS)

- Advanced research on natural gas and hydrogen technologies, fuel cell vehicles
- Cooperation in national and European projects (technical/management)
- Cooperation in private industrial projects (technical)

Sector Hydrogen production technologies, Fuel cells, Natural gas infrastructure, Innovative energy systemsNovember 2014 -
May 2015**Visiting scientist**Research Center Jülich - Jülich - Germany
IEK-3 - Group of Energy Systems Analysis (prof. D. Stolten)

- Analysis of Italian potential for Power-to-Gas
- Hydrogen energy storage applied to wind parks
- Electrolysis systems models development

Sector Power-to-gas and energy storage, energy system scenarios

EDUCATION AND TRAINING

- | | | |
|------------------------------------|--|-------|
| January 2013 -
April 2016 | PhD (Energy and Nuclear Science and Technology)
3 years - Mark: "Cum laude"
Energy Department - Politecnico di Milano - Milano (Italy)

Research activity on hydrogen and power to gas systems. Electrolysers modelling. Gas grid modelling. Methanation systems. | EQF 8 |
| September 2010 -
December 2012 | Master degree (Energy Engineering)
2 years - Mark: 110/110 cum laude
Politecnico di Milano (Technical university) - Milano (Italy) | EQF 7 |
| September 2007 -
September 2010 | Bachelor degree (Energy Engineering)
3 years - Mark: 110/110 cum laude
Politecnico di Milano (Technical university) - Milano (Italy) | EQF 6 |
| September 2002 -
July 2007 | High school diploma (Scientific curricula)
5 years - Mark: 100/100
Liceo Scientifico A. Volta - Milano (Italy) | EQF 4 |

OTHER ACTIVITIES

- Referee**
- **Referee for the Research council of Norway** - National projects evaluation in the ENERGIX-programme (November 2016) - Topics related with hydrogen production technologies

PROJECTS

- | | |
|----------------|--|
| EU projects | <ul style="list-style-type: none"> ▪ H2TRUST (FP7 - Jun 2013/Mar 2015) - Assessment of hydrogen safety SoA and dissemination (technical) ▪ DEMCOPEM (FP7 - Jan 2015/ongoing) - Demonstrative project for a 2MW PEM fuel cell for hydrogen recovery from a chlor-alkali chemical plant (technical/WP management) ▪ FLEDGED (H2020 - Nov 2016/ongoing) - Flexible dimethyl ether production from biomass gasification with sorption-enhanced processes (technical/management, WP leader) ▪ GRASSHOPPER (H2020 - Jan 2018/ongoing) - Demonstrative project for a 100 kW PEM fuel cell for electric grid balancing and hydrogen recovery (technical/WP management) |
| Other projects | <ul style="list-style-type: none"> ▪ SAPIO/NITIDOR (industrial - 2013/14) - Test of an alkaline electrolyser in Energy Department laboratories. Analysis of the performances and modelling of the system. (technical) ▪ SNAM (industrial - 2014/15) - Dynamic simulation of the Italian natural gas grid with commercial software and analysis of performances. (technical) |

PUBLICATIONS

Peer-reviewed journals

- J. Milewski, G. Guandalini, and S. Campanari, "Modeling An Alkaline Electrolysis Cell Through Reduced-order And Loss-estimate Approaches", **J. Power Sources**, vol. 269, pp. 203–211, Dec. 2014
- G. Guandalini, S. Campanari, and M. C. Romano, "Power-to-gas Plants and Gas Turbines for Improved Wind Energy Dispatchability: Energy and Economic Assessment," **Appl. energy**, no. 147 (1), pp. 117-130, June 2015.
- G. Guandalini, P. Colbitaldo, S. Campanari, "Dynamic modeling of natural gas quality within transport pipelines in presence of hydrogen injections", **Appl. Energy**, no. 185 (2), pp. 1712-1723, Jan. 2017.
- G. Guandalini, M. Robinius, T. Grube, S. Campanari, D. Stolten, "Long-term power-to-gas potential from wind and solar power: A country analysis for Italy", **Int. J. Hydrogen Energy**, no. 42 (19), pp. 13389-13406, 2017.
- G. Guandalini, S. Campanari, G. Valenti, "Comparative assessment and safety issues in state-of-the-art hydrogen production technologies", **Int. J. Hydrogen Energy**, vol. 41 (42), pp. 18901-20, Nov. 2016.

Conference proceedings

- G. Guandalini, S. Foresti, S. Campanari, J. Coolegem, J. Ten Have, "Simulation of a 2 MW PEM Fuel Cell Plant for Hydrogen Recovery from Chlor-Alkali Industry", **Energy procedia**, n° 105, pp. 1839-1846, 2016.
- S. Campanari, G. Guandalini, F. Beretta, G. Manzolini, "Comparison of battery and hydrogen fuel cell vehicles for freight transportation through WTW driving cycle simulations" , **WHEC Conference Proceedings**, Paper 578, June 2016.
- G. Guandalini, T. Grube, S. Campanari, D. Stolten, "Long-term power-to-gas potential for recovering excess energy from renewables: Italian case", **WHEC Conference Proceedings**, Paper 449, June 2016.
- G. Guandalini, S. Foresti, S. Campanari, J. Coolegem and J. ten Have, "Modeling of 2-MW co-generative PEM fuel cell for hydrogen recovering from Chlorine industry", **WHEC Conference Proceedings**, Paper 383, June 2016.
- G. Guandalini, S. Foresti, S. Campanari, J. Coolegem, J. ten Have, "Modeling of a MW scale PEM fuel cell power plant integrated in industrial chlor-alkali process", **EFC Conference**, Paper EFC15133, December 2015.
- G. Guandalini, P. Colbitaldo, S. Campanari, "Dynamic Quality Tracking of Natural Gas and Hydrogen Mixture in a Portion of Natural Gas Grid", **Energy Procedia**, no. 75, pp. 1037-1043, 2015.
- G. Guandalini, S. Campanari, "Wind power plant and power-to-gas system coupled with natural gas grid infrastructure: techno-economic optimization of operation", **ASME TurboExpo 2015**, Paper GT2015-42229, June 2015.
- G. Guandalini, M.C. Romano, S. Campanari, "Comparison Of Gas Turbines And Power-to-gas Plants For Improved Wind Park Energy Dispatchability", **ASME TurboExpo 2014**, Paper GT2014-26838, June 2014
- J. Milewski, G. Guandalini, S. Campanari, "A reduced-order approach to alkaline electrolysis modeling", **EFC Conference**, Paper EFC13209, December 2013.

CONFERENCES and SEMINARS

Conferences

- WHEC (World Hydrogen Energy Conference) 2016 - 2 oral presentations
- SmartMobility World 2016 - 1 oral presentation
- ASME TurboExpo 2015 - 1 oral presentation
- EFC (European Fuel Cell conference) 2015 - 1 oral presentation / 1 poster
- ASME TurboExpo 2014 - 1 oral presentation
- EFC (European Fuel Cell conference) 2013 - 1 poster
- Hypothesis 2013 - 2 oral presentations

DIDACTIC ACTIVITIES

University degree courses

- *Energy systems and environmental impact* (Bachelor courses - Support didactic work - front lessons - 6 semesters)
- *Energy laboratory* (Bachelor courses - Support didactic work - front lessons/laboratory - 2 semesters)
- *Energy conversion* (Master courses - Support didactic work - front lessons - 2 semesters)

Post-graduate courses

- Front lessons at master RIDEF (Politecnico di Milano) - biogas upgrading and power-to-gas technologies
- Seminars for ETICO project - power-to-gas and hydrogen technologies
- Seminars for AiCARR - microcogeneration

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Excellent	Excellent	Good	Good	Excellent
TOEFL iBT (99/120 - European level B2 - 24/04/2010)					
German	Sufficient	Good	Sufficient	Sufficient	Good
Zertifikat Deutsch (243.5/300 - European level B1 - 25/05/2006)					

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
 Common European Framework of Reference for Languages

Computer skills

- OS: Windows, Linux
- Excellent knowledge of MS Office suite (including scripting and VBA automation)
- Excellent knowledge of Fortran, Matlab, VB/VBA and Tcl/Tk programming languages, basic knowledge of C/C++
- Excellent knowledge of software for energy systems simulation (ASPEN suite)
- Good knowledge of database languages (MS Access, SQL)
- Basic knowledge of CAD (SolidEdge, SolidWorks, Inventor) and CFD codes (FLUENT, OpenFOAM)
- Basic knowledge of other word processors (Latex), programming languages (Phyton) and GIS (QGIS)