

PROF. ENG. GIACOMO FALCUCCI, PHD

Full Professor of Fluid Machinery, Energy and Environmental Systems
Dept. of Enterprise Engineering - University of Rome "Tor Vergata"

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EXPERIENCE

Full Professor

University of Rome "Tor Vergata"

📅 Feb 2025 – Ongoing 📍 Rome, Italy

- Fluid Machinery
- Energy and Environmental Systems
- Fluid-structure interaction of bio-mimetic systems
- Numerical and Experimental research on non-ideal, reacting flows, energy systems and energy storage solutions.

Associate to the Dept. of Physics

Harvard University

📅 Jan 2018 – Ongoing 📍 Boston (MA), USA

- Numerical and Experimental research on complex, reactive flows in active porous media.

Associate Professor

University of Rome "Tor Vergata"

📅 May 2019 – Feb. 2025 📍 Rome, Italy

- Fluid Machinery, Energy and Environmental Systems.

RESEARCH PROJECTS (SELECT.)

ONR Global - Surviving in the abyss skeletal adaptations of deep sea glass sponges

Office of Naval Research - PI

📅 3 yrs.

PRIN 2022 - Advanced H₂ Storage Systems

MIUR - PI

📅 2 yrs.

PRIN PNRR 2022 - Advanced Fluid-Structure Interactions

MIUR - Responsible of Tor Vergata Research Unit

📅 2 yrs.

ISCRA-B 2019 - High Performance Computing

CINECA - PI

📅 9 ms

PRIN 2017 - H₂ Energy System integration

MIUR - Responsible of Tor Vergata Research Unit

📅 3 yrs.

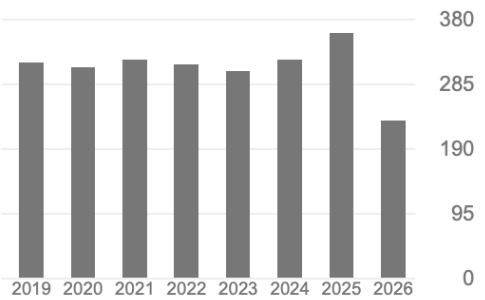
ACADEMIC METRICS

- # of published papers: > 180;
- # of International Citations (G-Scholar database): > 3700;
- *H*-index (G-Scholar database): *H* = 38
- Top Italian Scientist database, <https://tinyurl.com/G-Falcucci>

Cited by

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	All	Since 2021
Citations	3765	1860
h-index	38	23
i10-index	76	59



SELECTED PAPERS

- M. Maggini, A.L. Facci, G. Falcucci & S. Ubertini Numerical Modeling of Metal Hydride-Phase Change Material Hydrogen Storage Systems with Increased Heat Exchange surface area, *Applied Energy* **378**, 124725, 2025.
- G. Falcucci, G. Amati, G. Bella, A.L. Facci, V.K. Krastev, G. Polverino, S. Succi & M. Porfiri, Adapting to the Abyss: Passive Ventilation in the Deep-Sea Glass Sponge *Euplectella aspergillum*, *Physical Review Letters* **132** (20), 208402, 2024.
- G. Falcucci, G. Amati, P. Fanelli, V.K. Krastev, G. Polverino, M. Porfiri & S. Succi, Extreme flow simulations reveal skeletal adaptations of deep-sea sponges. *Nature*, **595**(7868), pp.537-541, 2021.
- G. Falcucci, G. Polverino, M. Porfiri, et al. Reply to: Models of flow through sponges must consider the sponge tissue. *Nature*, **603**, E26–E28, 2022.
- A.L. Facci, M. Lauricella, S. Succi, V. Villani & G. Falcucci, Optimized Modeling and Design of a PCM-enhanced H₂ Storage, *Energies*, **14**(6), 1554, 2021.;
- V.K. Krastev & G. Falcucci, *International Journal of Hydrogen Energy* **44**(9), 4468-4475, 2019;

EDUCATION

Ph.D. in Mechanical Engineering

University of Rome "Roma Tre"

6th April 2009

Thesis title: *Internal Combustion Engines: Thermo-Fluid Dynamic Aspects of Intake and Exhaust Systems*

M.Sc. in Mechanical Engineering

University of Rome "Roma Tre"

Sept 1998 – May 2005

110 e lode

Thesis title: *Modellazione della riogenazione di particolato in filtri per motori Diesel*

ACHIEVEMENTS

 **Aspen Italia Institue Award 2024**
for the research on the deep-sea sponge *Euplectella aspergillum* published in *Nature*;

 **Physical Review Letters Editor's Choice**
For the the paper on the adaptations to the abyss of the deep-sea glass sponge *Euplectella aspergillum*;

 **ERC 2021 - Consolidator Grant**
Project scored **A** - fully meets all the standards of scientific excellence required by ERC (not financed);

 **Nature Paper Publication, 595 (7868), 537-541, 2021**
Publication in *Nature* Journal of the research conducted on the deep-sea glass sponge *Euplectella aspergillum*;

 **Nature Paper Publication, 603 (7902), E26-E28, 2022**
Publication in *Nature* Journal of the research conducted on Deep-Sea Sponges;

 **NSF - Multimedia Gallery**
Image from *Nature*, 595(7868), pp.537-541, 2021, selected by the National Science Foundation for the Multimedia Gallery;

 **Capocaccia Prize 2015**
provided by the Italian Association for Stress Analysis;

 **ERC 2016 - Starting Grant**
Project scored **A** - fully meets all the standards of scientific excellence required by ERC (not financed);

 **EFC 2017 Best Paper Award**
for the paper on Microbial Fuel Cell performance prediction;

 **Member of the REPRISE**
for the Italian Ministry of Education, University and Research;

 **National Scientific Qualification to become Full Professor**
in 09/C1 Sector - Fluid Machinery, Energy and Environmental Systems;

 **Appointed Editorial Board Member of Scientific Reports**
Nature Publishing Group

LANGUAGES

English 

French 

SKILLS

Lattice Boltzmann Numerical modeling

Fortran HPC Latex Paraview

MacOS Linux Administration MS Office

Virtualization Cluster Management

GPU coding

REFERENCES

Prof. Sauro Succi
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Prof. Luca Biferale
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Prof. Andrea Alù
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Prof. Bruce E. Logan
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