Pietro ASINARI, PhD

ORCID ID: 0000-0003-1814-3846;

ResearcherID: C-5297-2012;

Scopus Author ID: 6507920690;

Number of articles on peer-reviewed journals: 140 (since 2004) about energy and environmental sustainability, materials modelling and digital transformation (26/01/2025).

Google Scholar statistics (26/01/20525): h-index 45; citations 6405; i10-index 116;

Complete list of publications;

Scopus statistics (26/01/2025): h-index 39; total citations 4876; documents 154.

CURRENT POSITIONS

2025 – **President** at the Italian National Institute of Metrological Research (INRiM). INRiM is a public research centre and is Italy's national metrology institute (NMI). INRIM realises, maintains, and develops the national reference standards of the measurement units of the International System (SI), consisting of seven base units - metre, kilogram, second, ampere, kelvin, mole, and candela - and derived units. INRIM's research spans many other areas such as materials science, nanoscience, quantum optics, studies on the fundamental constants of physics. The Institute is organized into three Divisions, namely (i) Applied metrology and engineering, (ii) Advanced materials metrology and life sciences and (iii) Quantum metrology and nanotechnologies. Figures at a glance in 2019: 160+ publications on international journals with impact factor (6 with IF>10); 1600+ calibration certificates; 219 employees; 5 large research infrastructures; annual budget of 30+ M€.

2016 – **Full Professor** (*"Professore Ordinario L. 240, SSD ING-IND/10 Fisica Tecnica Industriale"*), Department of Energy "Galileo Ferraris", Politecnico di Torino.

2012 – Co-founder and member of the **Multi-Scale Modeling Laboratory - SMaLL** (www.polito.it/small). Current members (24, without undergraduate students), with a variety of nationalities (IT, Iran, Pakistan, Saudi Arabia, Ethiopia, India): 2 full professors, 1 associate professor, 1 permanent assistant professor (RTD/B); 1 assistant professor (RTD/A); 8 post-doc; 11 PhD students (26/01/2025).

2010 – **Member of the Board** of the PhD in Energetics at Politecnico di Torino.

PREVIOUS POSITIONS

2020 – 2025 **Scientific Director** at the Italian National Institute of Metrological Research

(INRiM).

2016 – 2020 Member of the Executive Board of "*Alta Scuola Politecnica - ASP*" (http://www.asp-poli.it/), a multidisciplinary and unique international honour program, created by Politecnico di Milano e Politecnico di Torino.

2012 – 2016 Associate Professor ("*Professore Associato, SSD ING-IND/10 Fisica Tecnica Industriale*"), Department of Energy, Politecnico di Torino.

2005 – 2012 Assistant Professor and post-doc researcher, Department of Energy (Energetics at that time), Politecnico di Torino.

MANAGEMENT RESPONSIBILITIES

2008 – 2019 Active in securing research funds for a total amount of 3.9 M€, during 12 years (2008 – 2019), mainly from the H2020 Programme, acting as Principal Investigator (THERMAL-SKIN, NANO-BRIDGE, ENERGRID, NANOSTEP, ENI), Co-PI (MITOR), Unit Leader (EMMC-CSA, SMARTFAN, OYSTER, NanoInformaTIX, Heat Transfer, ARTEMIS, HT-PEM) and Group Leader (MODCOMP, VIMMP, COMPOSELECTOR, THERMONANO, DRAPO').

2014 – 2019 Member of the Operational Management Board of the European Materials Modelling Council – EMMC – (http://emmc.info), which gathered many stakeholders from manufacturers (including DoW, Siemens, Solvay, Unilever, Airbus), software owners (Accelrys, Materials Design, Scienomics, ANSYS, etc.), research centres (Fraunhofer, NPL, etc.) and universities (EPFL, Uppsala Univ., ParisTech, etc.) and guided material modelling activities in Europe promoted by the European Commission.

2017 – 2020 Member of the Management Board of the Clean Water Center @Polito (CWC, http://cleanwater.polito.it/).

2022 – Vice President of Italian Union of Thermal Fluid Dynamics (www.uitonline.it).

2016 – Member of the Steering Committee of the Italian Union of Thermal Fluid Dynamics (www.uitonline.it).

SCIENTIFIC RESPONSIBILITIES

2024 – International member of the MatCore Project, led by the University of Minnesota, which was recently launched to address the need for implementing FAIR principles in computational simulation research. Among others, some relevant involved partners are: Argonne National Laboratory; University of Illinois, Urbana-Champaign; University of Chicago; University of Colorado, Boulder; Lawrence Livermore National Laboratory; University of California, Berkeley; Sandia National Laboratory; Colorado School of Mines.

2018 – International member of the Advisory Committee of the American OpenKIM project (https://openkim.org) for interatomic models.

2012 – Member of the Editorial Board of the international journal Computation (https://www.mdpi.com/journal/computation).

2012 – Member of the International Scientific Committee of the International Conference for Mesoscopic Methods in Engineering and Science - ICMMES (www.icmmes.org).

2014 – 2016 Project Technical Advisor (PTA) of the European Commission (EC) Directorate-General for Research and Innovation, Unit D.3 — Advanced Materials and Nanotechnologies.

INTERNATIONAL EXPERIENCE

2004 – 2019 Invited speaker and/or plenary lecturer (33), invited lecturer for advanced courses (13), invited visitor for research stays financially supported by host institutions (6).

2004 – Current network of collaborators from USA, UK, FRANCE, SWITZERLAND and JAPAN, including Argonne National Laboratory (ANL), Massachusetts Institute of Technology (MIT), Northwestern University, Kyoto University and Imperial College.

ACADEMIC RESPONSIBILITIES

2018 – 2019 Coordinator of the Master Program "Development of innovative design / construction guidelines, technologies and processes for advanced components and thermal systems with enhanced performance for vehicle applications", organized for DENSO Thermal Systems S.p.A..

2017 – 2020 Deputy Coordinator of the Degree Program in Mechanical Engineering.

2013 – 2019 Teaching experience in PhD courses: Lead Instructor for the courses of "Computational heat and mass transfer" (4 editions) and "Multi-scale modelling and simulation of molecular and mesoscopic dynamics" (2 editions).

2010 – 2019 Teaching experience in Master's Degree Program: Lead Instructor for the courses of *"Applicazioni avanzate di Fisica Tecnica"* (7 editions, typically 300+ enrolled students), "Advanced topics of Engineering Thermodynamics" (9 editions, typically 250+ enrolled students), *"Applicazioni energetiche dei materiali"* (4 editions) and "Numerical heat transfer" (3 editions).

2008 – 2011 Teaching experience in Bachelor's Degree Program: Lead Instructor for the courses of *"Fisica Tecnica"* (3 editions, typically 80+ enrolled students).

EDUCATION

May 2005 PhD in Energetics, Politecnico di Torino, including a research stay at Virginia Tech (VA, USA) (www.vt.edu), with a PhD thesis entitled "Multi-Scale Analysis of Heat and Mass Transfer in Mini/Micro Structures".

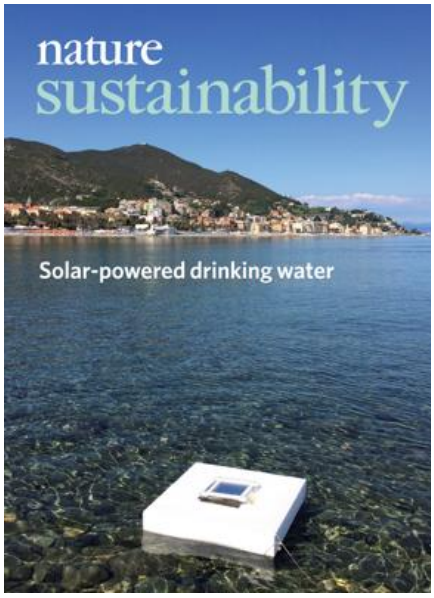
May 2001 Master of Science Degree and Bachelor's Degree in Mechanical Engineering with grade 110/110 *summa cum laude*, Politecnico di Torino, with a thesis entitled "Thermo–Fluidynamic Analysis of Fission Fragment Direct Heating for Space Propulsion" in collaboration with the Italian Space Agency (ASI).

FELLOWSHIPS AND AWARDS

2006 The Eni Italgas Prize for Energy and Environment, XVIII edition.
2007 UIT Award for the best doctoral thesis (www.uitonline.it).
2001 UIT Award for the best master's thesis (www.uitonline.it).
2001 OPTIME Prize from the Industrial Union for the best undergraduate curriculum.

TEN SELECTED PUBLICATIONS

1. Morciano, M., Fasano, M., Boriskina, S.V., Chiavazzo, E., **Asinari, P.**, Solar passive distiller with high productivity and Marangoni effect-driven salt rejection (2020), Energy & Environmental Science, vol. 13, p. 3646-3655.
2. Alberghini, M., Morciano, M., Fasano, M., Bertiglia, F., Fernicola, V., **Asinari, P.**, Chiavazzo, E., Multistage and passive cooling process driven by salinity difference (2020), Science Advances, vol. 6, no. 11.



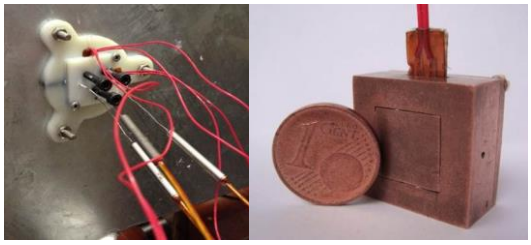
3. Chiavazzo, E. , Morciano, M., Viglino, F., Fasano, M., **Asinari, P.**, Passive solar high-yield seawater desalination by modular and low-cost distillation (2018), Nature Sustainability, vol. 1, p. 763-772 (cover page).

   Official link:
   https://www.nature.com/articles/s41893-018-0186-x

   Open access arXiv:
   https://arxiv.org/abs/1702.05422

   Dissemination blog:
   https://sustainabilitycommunity.nature.com/users/20671-pietro-asinari/posts/42251-try-to-be-frugal-if-you-can

4. Fasano, M., Humplik, T., Bevilacqua, A., Tsapatsis, M., Chiavazzo, E., Wang, E.N., **Asinari, P.**, Interplay between hydrophilicity and surface barriers on water transport in zeolite membranes (2016), Nature Communications 7, art. 12762 (in collaboration with the Department of Mechanical Engineering of the Massachusetts Institute of Technology – MIT – and University of Minnesota).
5. Chiavazzo, E., Fasano, M., **Asinari, P.**, Decuzzi, P., Scaling behaviour for the water transport in nanoconfined geometries (2014), Nature Communications, 5, 3565 (in collaboration with Houston Methodist Research Institute).



6. Chiavazzo, E., Ventola, L., Calignano, F., Manfredi, D., **Asinari, P.**, A sensor for direct measurement of small convective heat fluxes: Validation and application to micro-structured surfaces (2014), Experimental Thermal and Fluid Science, 55, pp. 42-53.
7. Ventola, L., Robotti, F., Dialameh, M., Calignano, F., Manfredi, D., Chiavazzo, E., **Asinari, P.**, Rough surfaces with enhanced heat transfer for electronics cooling by direct metal laser sintering (2014), International Journal of Heat and Mass Transfer, 75, pp. 58-74.

8. **Asinari, P.**, Ohwada, T., Chiavazzo, E., Di Rienzo, A.F., Link-wise artificial compressibility method (2012), Journal of Computational Physics, 231 (15), pp. 5109-5143 (in collaboration with Kyoto University).
9. Bergamasco, L., **Asinari, P.**, Scalable methodology for the photovoltaic solar energy potential assessment based on available roof surface area: Application to Piedmont Region (Italy) (2011), Solar Energy, 85 (5), pp. 1041-1055.
10. **Asinari, P.**, Mishra, S.C., Borchiellini, R., A lattice Boltzmann formulation for the analysis of radiative heat transfer problems in a participating medium (2010), Numerical Heat Transfer, Part B: Fundamentals, 57 (2), pp. 126-146.