Curriculum Vitae
Updated
October 22, 2024

Personal information

Name / Surname	**Giuseppe Procopio**

Current job position

Dates	October 2023 - present
Name of institution	Department Chemical Engineering Materials Environment - Sapienza University of Rome
Occupation	Postdoctoral researcher (Assegnista di ricerca)
Main activities	Research and tutoring
Research field	Fluid dynamics, Chemical reactors, Transport phenomena, Chemical process thermodynamics, Non-equilibrium thermodynamics, Energy storage

Work experience

Dates	May 2023 - September 2023
Name of institution	Department of Basic and Applied Sciences for Engineering - Sapienza University of Rome
Occupation	Postdoctoral researcher (Borsista)
Main activities	Research and tutoring
Research field	Surface science, Material science, Electrostatic, Athomic Force Microscopy (AFM), Kelvin Probe Force Microscopy, Nanotechnology

Education

Date	28 April 2023
Name of institution	Sapienza University of Rome
Title of qualification awarded	PhD in Chemical Processes for Industry and Environment
Thesis	*Hydrodynamic characterization of finite-sized particle transport in confined microfluidic systems, Brownian motion and stochastic modeling of particle transport at microscale*
Research field	Fluid dynamics, Transport phenomena, Hydrodynamic interaction of particles, Brownian motion, Stochastic processes

Date	29 July 2019
Name of institution	Sapienza University of Rome
Title of qualification awarded	Master's degree in Nanotechnology Engineering (LM-53)
Grade	With honors
Thesis	*Theoretical and numerical analysis of deterministic and stochastic dynamics of spherical colloids in confined microfluidic geometries*

Data	25 May 2015
Name of institution	Sapienza University of Rome
Title of qualification awarded	Bachelor's degree in Chemical Engineering (L-9)
Thesis	*Investigations on the rupture of a pipeline for crude oil transportation*

Computer skills

Operating systems	Linux/Ubuntu, Windows, macOS
Softwares	LaTeX, Inkscape, GIMP, Gnuplot, Autocad, Microsoft Office, Libre Office
Softwares for simulation and calculation	Matlab, Comsol Multiphysics, Mathematica, Pro-II, OpenFOAM
Programming language	Fortran, C

Languages

Mother tongue	Italian
Language	English
Reading level	Advanced
Writing level	Advanced
Speaking level	Advanced

Complementary training

Dates	13-28 October 2022
Place	Online
Organisation	GRICU (GRuppo di Ingegneria Chimica dell'Università) and AIDIC (Associzione Italiana di Ingegneria Chimica)
Name of the course	DaET School: Process Decarbonization and Energy Transition
Dates	6-9 July 2022
Place	Ischia (Naples)
Organisation	GRICU (GRuppo di Ingegneria Chimica dell'Università)
Name of the course	School GRICU 2022: Fundamentals of Electrochemical Processes and their Application in Heterogeneous Catalysis

Conference Participation

Dates	16-20 September 2024
Place	Aachen, Germany
Name of the conference	1-st European Fluid Mechanics Conference
Role	Speaker
Title of the presentation	*On the theory of body motion in confined Stokesian fluids*
Dates	29 July- 4 August 2023
Place	Athens
Name of the conference	International Congress on Rheology 2023
Role	Speaker
Title of the presentation	*On the Faxén operators and the dualism with the disturbance fields of an arbitrary body in Stokes flows*
Dates	12-17 June 2023
Place	Salerno, Italy
Name of the conference	Joint European Thermodynamics Conference 2023
Role	Speaker
Title of the presentation	*From the Stokesian particle/solid-wall paradox to the hyperbolic paradigm of diffusion-controlled surface chemical process*

Dates	13-16 September 2022
Place	Athens
Name of the conference	14-th European Fluid Mechanics Conference
Role	Speaker
Title of the presentation	*Bitensorial singularity method to model the Stokesian dinamics of transported particles in microfluidics*
Dates	3-6 July 2022
Place	Ischia (Naples), Italy
Name of the conference	Conferenza nazionale Gruppo dell'Ingengeria Chimica dell'Università
Role	Speaker
Title of the presentation	*Slippage at the solid-liquid interfaces: implications for colloidal transport in confined geometries*
Dates	23-26 May 2021
Place	Online
Name of the conference	15-th International Conference on Chemical and Process Engineering
Role	Speaker
Title of the presentation	*Generalized Reflection Method for the Stokes Equation in Confined Geometries: Applications To Microfluidics and Particle Transport*

Teaching experience

Dates	June 2024
Institution	Sapienza University of Rome
Course	Phd course in Chemical Processes for Industry and Environment
Class	From Stokesian dynamics to microfluidic applications
Activities	Teaching of micro-scale fluid dynamics, properties of Stokes flows, applications in active matter, separation processes and suspensions
Dates	October 2023 - February 2024
Institution	Sapienza University of Rome
Course	Master's degree in Chemical Engineering
Class	Services for helping international students prepare for their Chemical Engineering courses
Activities	Review of fundamentals, teaching of computer tools and programming languages, providing of learning materials
Dates	May-June 2021, 2022, 2023, 2024
Institution	Sapienza University of Rome
Course	Master's degree in Nanotechnology Engineering
Class	Transport phenomena in microsystems and micro-nano reactive devices
Professor	Massimiliano Giona
Activities	Seminars: *Stokesian Dynamics of Particles*
Dates	November-December 2020
Institution	Sapienza University of Rome
Course	Master's degree in Chemical Engineering
Class	Separation processes with an application to Lab-on-a-chip
Professor	Stefano Cerbelli
Activities	Numerical exercises and FEM simulations

Dates	November-December 2019, 2021
Institution	Sapienza University of Rome
Course	Master's degree in Chemical Engineering
Class	Non Equilibrium Thermodynamics with application to the microscale
Professor	Massimiliano Giona
Activities	Numerical exercises and FEM simulations

Other professional contribution

Reviewer for the following *archival journal*:

Name of the journal

Chemical Engineering Transactions (AIDIC, The Italian Association of Chemical Engineering).

Physics of Fluids (AIP, American Institute of Physics).

Publications

• Procopio, G. and Giona, M., 2024. On the theory of body motion in confined Stokesian fluids. *Journal of Fluid Mechanics, in press*.
arXiv:2309.03527

• Procopio, G., Pezzotti, C., Cocco, D., Giona, M., 2024. Thermodynamics of irreversible processes: fundamental constraints, representations, and formulation of boundary conditions. *Physics*, 6(2), pp. 801-827.
DOI: https://doi.org/10.3390/physics6020050

• Procopio, G. and Giona, M., 2024. On the Hinch-Kim dualism between singularity and Faxén operators in the hydromechanics of arbitrary bodies in Stokes flows. *Physics of Fluids*., 36, 032016.
DOI: 10.1063/5.0175800

• Giona, M., Pezzotti, C., and Procopio, G. 2024. Another normality is possible. Distributive transformations and emergent Gaussianity. *Physica A*, 634, 129450.
DOI: https://doi.org/10.1016/j.physa.2023.129450

• Giona, M., Pezzotti, C. and Procopio, G., 2023. The fourfold way to Gaussianity: physical interactions, distributional models and monadic transformations. *Axioms*,12(3), p. 278.
DOI: https://doi.org/10.3390/axioms12030278

• Procopio, G. and Giona, M., 2023. Modal representation of inertial effects in fluid-particle interactions and the regularity of the memory kernels. *Fluids*, 8(3), p. 84.
DOI: https://doi.org/10.3390/fluids8030084

• Giona, M., Procopio, G., Adrover, A. and Mauri, R., 2023. New formulation of the Navier–Stokes equations for liquid flows. *Journal of Non-Equilibrium Thermodynamics*, 48(2), pp. 207-228.
DOI: https://doi.org/10.1515/jnet-2022-0095

• Venditti, C., Cerbelli, S., Procopio, G. and Adrover, A., 2022. Comparison between one-and two-way coupling approaches for estimating effective transport properties of suspended particles undergoing Brownian sieving hydrodynamic chromatography. *Physics of Fluids*, 34(4), p. 042010.
DOI: 10.1063/5.0088977

• Procopio, G. and Giona, M., 2023. Bitensorial formulation of the singularity method for Stokes flows. *Mathematics in Engineering*, 5(2), pp. 1-34.
DOI:10.3934/mine.2023046

• Procopio, G. and Giona, M., 2022. Stochastic Modeling of Particle Transport in Confined Geometries: Problems and Peculiarities. *Fluids*, 7(3), p.105.
DOI: https://doi.org/10.3390/fluids7030105

• Undvall, E., Garofalo, F., Procopio, G., Qiu, W., Lenshof, A., Laurell, T. and Baasch, T., 2022. Inertia-Induced Breakdown of Acoustic Sorting Efficiency at High Flow Rates. *Physical Review Applied*, 17(3), p. 034014.
DOI: 10.1103/PhysRevApplied.17.034014

• Giona, M., Procopio, G. and Mauri, R., 2022. Hydrodynamic Green functions: paradoxes in unsteady Stokes conditions and infinite propagation velocity in incompressible viscous models. *Meccanica*, 57(5), pp. 1055-1069.
DOI: https://doi.org/10.1007/s11012-022-01502-y
• Procopio, G., Adrover, A. and Giona, M., 2021. Generalized Reflection Method for the Stokes Equation in Confined Geometries: Applications To Microfluidics and Particle Transport. *Chemical Engineering Transactions*, 86, pp.1153-1158.
DOI: 10.3303/CET2186193