Milo Viviani

PERSONAL INFORMATION	Date of birth:	08th October 1991
	Place of birth:	Verona, Italy
	Current position:	Postdoc (assegnista) at the Scuola Normale Superiore, 56126, Pisa, Italy
	Personal webpage:	https://miloviviani.wordpress.com/

CONTACT INFORMATION	Email:	milo.viviani@sns.it
	Phone:	(+39) 3489202483
	University:	Scuola Normale Superiore, 56126, Pisa, Italy

RESEARCH INTERESTS

Geometric integration, fluid dynamics, Lie group methods, analytical mechanics

EMPLOYMENT

Scuola Normale Superiore, Pisa, Italy

Post-doctoral Position, Dec 2023 -

Wallenberg Post-doctoral Position, Jan 2022 - Dec 2023

Junior Visiting Position, Oct 2020 - Dec 2021

EDUCATION

Chalmers University of Technology, Gothenburg, Sweden

Ph.D., Mathematics, Sept 2015 - Sept 2020
- Thesis Topic: *Symplectic methods for isospectral flows and 2D ideal hydrodynamics*
- Advisor: prof. Klas Modin, Chalmers University of Technology

Licentiate exam, Mathematics, June 2018

University of Pavia, Pavia, Italy

M.S., Mathematics, Aug 2013 - Sept 2015
- Topic: *Geometric integration of the point vortex equation on a rotating sphere*
- Advisor: prof. Carlo Lovadina, University of Pavia
- Co-advisor: prof. Antonella Zanna, University of Bergen, Bergen, Norway
- 110/110 cum laude

B.S., Mathematics , Oct 2010 - July 2013
- Topic: *An introduction to geometric mechanics*
- Advisor: prof. Riccardo Rosso, University of Pavia
- 110/110 cum laude

IUSS, Pavia, Italy

Science and technology, Oct 2010 - Oct 2016

PUBLICATIONS

1. F. Grotto, M. Romito and M. Viviani, Zero-noise dynamics after collapse for three point vortices, *Physica D: Nonlinear Phenomena*, 2024, 457. DOI: 10.1016/j.physd.2023.133947

2. P. Cifani, S.R. Ephrati, B.J. Geurts, and M. Viviani, Data-driven stochastic spectral modeling for coarsening of the two-dimensional Euler equations on the sphere, *Physics of Fluids*, 2023, 35(9). DOI: 10.1063/5.0156942

3. P. Cifani, K. Modin and M. Viviani, An efficient geometric method for incompressible hydrodynamics on the sphere, *Journal of Computational Physics*, 2023, 473. DOI: 10.1016/j.jcp.2022.111772

4. M. Benzi and M. Viviani, Solving cubic matrix equations arising in conservative dynamics, *Vietnam J. Math.*, 2023, 51(1), pp. 113–126. DOI: 10.1007/s10013-022-00578-z

5. F. Flandoli, U. Pappalettera and M. Viviani, On the infinite dimension limit of invariant measures and solutions of Zeitlin's 2D Euler equations, *Journal of Statistical Physics*, 2022, 189(3). DOI: 10.1007/s10955-022-03007-0

6. P. Cifani, B.J. Geurts, E. Luesink, K. Modin and M. Viviani, Casimir preserving spectrum of two-dimensional turbulence, *Phys. Rev. Fluids*, 2022, 7(8). DOI: 10.1103/PhysRevFluids.7.L082601

7. K. Modin and M. Viviani, Canonical scale separation in two-dimensional incompressible hydrodynamics, *Journal of Fluid Mechanics*, 2022, 943, A36. DOI: 10.1017/jfm.2022.457

8. M. Viviani, An algebraic approach to the spontaneous formation of spherical jets, *Journal of Computational Dynamics*, 2022, 9(2), pp. 279–298. DOI: 10.3934/jcd.2021028

9. K. Modin and M. Viviani, Integrability of point-vortex dynamics via symplectic reduction: a survey, *Arnold Mathematical Journal*, 2021, 7(3), pp. 357–385. DOI: 10.1007/s40598-020-00162-8

10. M. Viviani, A minimal-variable method for isospectral flows, *BIT Numerical Mathematics*, 2020, 60(3), pp. 741–758. DOI: 10.1007/s10543-019-00792-1

11. K. Modin and M. Viviani, A Casimir preserving scheme for long-time simulation of spherical ideal hydrodynamics, *Journal of Fluid Mechanics*, 2020, 884, A22. DOI: 10.1017/jfm.2019.944

12. K. Modin and M. Viviani, Lie–Poisson methods for isospectral flows, *Found. Comput. Math.*, 2020, 20(4), pp. 889–921. DOI: 10.1007/s10208-019-09428-w

PROCEEDINGS

1. P. Cifani, S. Ephrati and M. Viviani, Sparse-stochastic model reduction for 2D Euler equations, *Stochastic Transport in Upper Ocean Dynamics Annual Workshop*, 2023. DOI: 10.1007/978-3-031-40094-0

2. P. Cifani, S.R. Ephrati, B.J. Geurts, K. Modin and M. Viviani, Coarse-grained modelling via canonical scale separation in 2D incompressible hydrodynamics, *13th ERCOFTAC Workshop on Direct and Large Eddy Simulation*, 2022.

3. P. Cifani, S.R. Ephrati, B.J. Geurts, K. Modin and M. Viviani, Structure-preserving integration for high-performance DNS of geophysical flows, *13th ERCOFTAC Workshop on Direct and Large Eddy Simulation*, 2022.

AWARDS

New talent award, SCiCADE, Innsbruck
https://scicade2019.uibk.ac.at/new-talent-award   Jul 2019

GRANTS

Wallenberg Fundation
https://kaw.wallenberg.org/en/milo-viviani   Jan 2022 - Jan 2024

SCHOLARSHIPS	Institut Henri Poincaré (IHP)	Autumn 2019
	Institut Henri Poincaré (IHP)	Autumn 2019
	Essénstipendium	Spring 2019
	SVeFUM resestipendium	Spring 2019
	Adlerbertska Stipendiestiftelsen	Summer 2018
	ERASMUS scholarship for the University of Bergen, Norway	Spring 2015
	IUSS scholarship for studies in Pavia	2010-2015

TEACHING
EXPERIENCE

Scuola Superiore Sant'Anna
- Full teacher, Complements of mathematics (Engineer)   Spring 2023
- Full teacher, Complements of mathematics (Engineer)   Spring 2022
- Full teacher, Complements of mathematics (Engineer)   Spring 2021

Chalmers University of Technology
- Teaching Assistant, Linear algebra and numerical analysis (Engineer)   Spring 2020
- Full teacher, Series and derivatives in several variables (Engineer)   Summer 2018
- Full teacher, Series and derivatives in several variables (Engineer)   Summer 2017
- Teaching Assistant, Multivariable calculus (Engineer)   Spring 2017
- Teaching Assistant, Multivariable calculus (Engineer)   Winter 2017
- Teaching Assistant, Computational mathematics (Engineer)   Autumn 2016
- Teaching Assistant, Series and derivatives in several variables (Engineer)   Summer 2016
- Teaching Assistant, Linear algebra and numerical analysis (Engineer)   Spring 2016
- Teaching Assistant, Computational mathematics (Engineer)   Autumn 2015

University of Pavia
- Teaching Assistant, Analytical mechanics (Engineer)   Autumn 2014
- Teaching Assistant, Analytical mechanics (Engineer)   Spring 2014
- Teaching Assistant, Mathematics (Economy)   Year 2013
- Teaching Assistant, Mathematics (CTF)   Autumn 2013
- Teaching Assistant, Mathematics (Biotechnology)   Autumn 2012

PRESENTATIONS
- YoungStatS Webinar on Stochastic Fluid Dynamics (ONLINE)   Nov 2023
- Infinite Dimensional Geometry and Fluids BIRS, Banff, Canada   Nov 2023
- XXII Congresso dell'Unione Matematica Italiana, Pisa, Italy   Sep 2023
- II Workshop in Geometric methods and stochastic reduction for fluid models, Twente, The Netherlands   May 2023
- DLES, Udine, Italy   Oct 2022
- I Workshop in Geometric methods and stochastic reduction for fluid models, L'Aquila, Italy   Sep 2022
- INI GFD Programme, Reading, UK   Aug-Sep 2022
- SciCADE 2022, Reykjavik, Iceland   Jul 2022
- 30th Birthday of Acta Numerica, Bedlewo, Poland   Jun 2022
- CAIMS Annual Meeting 2022, Kelowna, Canada (ONLINE)   Jun 2022
- 100UMI800UniPd, Padova, Italy   May 2022
- Due Giorni di Algebra Lineare Numerica e Applicazioni, Napoli, Italy   Feb 2022
- Winter School and Workshop Wisla 21-22, Wisla, Poland (ONLINE) Jan-Feb 2022
- CASA colloquium - TU Eindhoven, Eindhoven, Netherlands (ONLINE)   Feb 2022
- VI ECCOMAS Young Investigators Conference, Valencia, Spain (ONLINE)   Jul 2021
- Geometric Numerical Integration, Oberwolfach, Germany (ONLINE)   Mar 2021
- STRUCTAPP2020, University of L'Aquila, Italy   Jan 2020
- Nonlinear and stochastic methods in climate and geophysical fluid dynamics, Institut Henri Poincaré (IHP), Paris, France   Oct 2019

- International Conference on Scientific Computation and Differential Equations (SCiCADE) - New talent award talk (plenary), Innsbruk, Austria   Jul 2019
- International Conference on Scientific Computation and Differential Equations (SCiCADE), Innsbruk, Austria   Jul 2019
- 13th International Young Researchers Workshop on Geometry, Mechanics and Control, Coimbra, Portugal (Poster)   Dec 2018
- BIT Circus, Helsinki, Finland   Aug 2018
- VI Iberoamerican meeting on Geometry, Mechanics and Control, Guanajuato, Mexico   Aug 2018
- 12th International Young Researchers Workshop on Geometry, Mechanics and Control, Padova, Italy (Poster)   Jan 2018
- Challenges in the preservation of structure (CHiPS), Trondheim, Norway   Jun 2017
- Manifolds and Geometric Integration Colloquia (MaGIC), Myrdal, Norway   Mar 2017
- 10 GMC school ICMAT, Madrid, Spain   Jun 2016
- Manifolds and Geometric Integration Colloquium, Myrkdalen, Norway   Feb 2015

CONFERENCES AND SUMMER SCHOOLS	

- Infinite Dimensional Geometry and Fluids - BIRS, Banff, Canada   Nov 2023
- Enjoying Probability and Fluids in Lausanne, Lausanne, Switzerland   Sep 2023
- XXII Congresso dell'Unione Matematica Italiana, Pisa, Italy   Sep 2023
- II Workshop in Geometric methods and stochastic reduction for fluid models, Twente, The Netherlands   May 2023
- DLES, Udine, Italy   Oct 2022
- STUOD meeting, London, UK   Sep 2022
- GSSI workshop, L'Aquila, Italy   Sep 2022
- INI GFD Programme, Reading, UK   Aug-Sep 2022
- SciCADE 2022, Reykjavik, Iceland   Jul 2022
- 30th Birthday of Acta Numerica, Bedlewo, Poland   Jun 2022
- CAIMS Annual Meeting 2022, Kelowna, Canada (ONLINE)   Jun 2022
- A journey to numerical linear algebra: a workshop in honour of Michele Benzi, Pisa, Italy   Jun 2022
- 100UMI800UniPd, Padova, Italy   May 2022
- Due Giorni di Algebra Lineare Numerica e Applicazioni, Napoli, Italy   Feb 2022
- Winter School and Workshop Wisla 21-22, Wisla, Poland (ONLINE)   Jan-Feb 2022
- Transport, Fluids and Mixing, Pisa, Italy (ONLINE)   Jan 2022
- Numerical Aspects of Hyperbolic Balance Laws and Related Problems - Young Researchers Conference, Verona, Italy   Dec 2021
- VI ECCOMAS Young Investigators Conference, Valencia, Spain (ONLINE)   Jul 2021
- Geometric Numerical Integration, Oberwolfach, Germany (ONLINE)   Mar 2021
- Winter School and Workshop Wisla 20-21: Groups, invariants, and moving frames, Wisla, Poland (ONLINE)   Jan-Feb 2021
- Turbulence: Problems at the Interface of Mathematics and Physics, Bangalore, India (ONLINE)   Dec 2020
- XLV Summer school on mathematical physics, Ravello, Italy   Sep 2020
- Mathematics of Planet Earth Webinars: Analysis and Modelling (ONLINE) May-Jul 2020
- STRUCTAPP2020, University of L'Aquila, Italy   Jan 2020
- Big Data, Data Assimilation and Uncertainty Quantification, Institut Henri Poincaré (IHP), Paris, France   Nov 2019
- Nonlinear and stochastic methods in climate and geophysical fluid dynamics, Institut Henri Poincaré (IHP), Paris, France   Oct 2019
- The Mathematics of Climate and the Environment, Cargese, France   Sep 2019
- The Mathematics of Climate and the Environment, Institut Henri Poincaré (IHP),

Paris, France   Sep-Dec 2019
- International Conference on Scientific Computation and Differential Equations (SCiCADE), Innsbruk, Austria   Jul 2019
- 13th International Young Researchers Workshop on Geometry, Mechanics and Control, Coimbra, Portugal   Dec 2018
- BIT Circus, Helsinki, Finland   Aug 2018
- VI Iberoamerican meeting on Geometry, Mechanics and Control, Guanajuato, Mexico Aug 2018
- 12th International Young Researchers Workshop on Geometry, Mechanics and Control and Dynamics and Integrability of nonholonomic and other non-Hamiltonian systems, Padova, Italy   Jan 2018
- Challenges in the preservation of structure (CHiPS), Trondheim, Norway Jun 2017
- Manifolds and Geometric Integration Colloquia (MaGIC), Myrdal, Norway   Mar 2017
- 11th Young Researcher Workshop on geometry mechanics and control and V Iberoamerican meeting on Geometry, Mechanics and Control, La Laguna, Spain   Jan 2017
- XLI Summer school on mathematical physics, Ravello, Italy   Sep 2016
- 10th GMC school ICMAT, Madrid, Spain   Jun 2016
- Levico Terme Summer school 2015, Ninth School on Analysis and Geometry in Metric Spaces, Levico Terme, Italy   Jul 2015
- Nordfjordeid Summer school 2015, Lie groups and pseudogroups actions: From classical to differential invariants, Norway   Jun 2015
- Manifolds and Geometric Integration Colloquium, Myrkdalen, Norway   Feb 2015

CONFERENCES ORGANIZED	- Mathematics of Planet Earth Webinars: Analysis and Modelling, https://sites.google.com/view/mpe2020-webinars/home May-Jul 2020

SHORT PROFESSIONAL TRAVELS	- GSSI, L'Aquila, Italy	Jan 2023
	- University of Perugia, Perugia, Italy	Jun 2022
	- Isaac Newton Institute, Cambridge, UK	Nov 2019
	- Isaac Newton Institute, Cambridge, UK	Aug 2019

EXTENDED PROFESSIONAL TRAVELS	- Institut Henri Poincaré (IHP), Paris, France	Sept-Dec 2019
	- Victoria University, Wellington and Massey University, Palmerston North, New Zealand	Feb - Apr 2018
	- Massey University, Palmerston North, New Zealand	Jan - Mar 2016
	- University of Bergen, Bergen, Norway	Jan - Jun 2015

LANGUAGES	- Italian - mother tongue
	- English - fluent
	- French - good (B1)
	- Swedish - basic (A2)
	- Spanish - basic (A2)

COMPUTER PROGRAMMING	- Matlab, LaTeX, C, Pascal

JOURNALS COLLABORATIONS AS PEER REVIEWER	- BIT (Springer), Chaos (AIP Publishing), Calcolo (Springer), Numerical algorithms (Springer), Proceedings of the Royal Society A, SIAM Journal on Applied Algebra and Geometry, SIAM Journal on Matrix Analysis and Applications