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

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

2. P. Cifani, B.J. Geurts, E. Luesink, K. Modin and M. Viviani, Casimir preserving spectrum of two-dimensional turbulence, *Phys. Rev. Fluids* 7, 2022. https://link.aps.org/doi/10.1103/PhysRevFluids.7.L082601

3. 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* 189, 43, 2022. https://doi.org/10.1007/s10955-022-03007-0

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

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

6. M. Viviani, An algebraic approach to the spontaneous formation of spherical jets, *Journal of Computational Dynamics*, 2022. DOI: 10.3934/jcd.2021028

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

8. M. Viviani, A minimal-variable method for isospectral flows, *BIT journal*, 2020. DOI: 10.1007/s10543-019-00792-1

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

10. K. Modin and M. Viviani, Lie–Poisson methods for isospectral flows, *Found. Comput. Math.*, 2020. DOI: 10.1007/s10208-019-09428-w

PREPRINTS
1. P. Cifani, S. Ephrati, and M. Viviani, Sparse-stochastic model reduction for 2D Euler equations, *ArXiv*, 2023

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 2022
- Full teacher, Complements of mathematics (Engineer)   Spring 2021

Chalmers University of Technology
- 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
- DLES, Udine, Italy   Oct 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
- 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
- 10GMCSCHOOL ICMAT, Madrid, Spain   Jun 2016
- Manifolds and Geometric Integration Colloquium, Myrkdalen, Norway   Feb 2015

CONFERENCES AND SUMMER SCHOOLS
- 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
- 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