

Curriculum Vitae – Gabriele Sbaiz

Università Degli Studi di Trieste
Dipartimento di Scienze Economiche, Aziendali, Matematiche e Statistiche
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PERSONAL INFORMATION

Date and place of birth: 19th September 1994 – Latisana (UD), Italy

CURRENT POSITION (from 1st June 2022)

Università Degli Studi di Trieste (Italy)

Post-Doc Researcher at the Department of Economics, Business, Mathematics and Statistics

Project Title: *“Sustainable investment strategies for portfolio optimization in extreme market conditions”*

Università Degli Studi di Trieste (Italy)

Cultore della Materia in “Matematica Generale” at the Department of Economics, Business, Mathematics and Statistics (from February 2023)

WORK EXPERIENCES

2018 – 2021 **Università Degli Studi di Trieste (Italy) & Université Claude Bernard - Lyon 1 (France)**
PhD Candidate in “Earth Science, Fluid-Dynamics and Mathematics. Interactions and Methods” & in “InfoMaths”
Title of the project: *“Some stability and instability issues in the dynamics of highly rotating fluids”*
Supervisor: DEL SANTO Daniele (Università Degli Studi di Trieste, Italy)
Co-supervisor: FANELLI Francesco (Université Claude Bernard – Lyon 1, France)

2019 – 2020 **Université Claude Bernard - Lyon 1 (France)**
Visiting PhD Student at “Institut Camille Jordan” (Lyon)

EDUCATION

Università Degli Studi di Trieste (Italy) & Université Claude Bernard - Lyon 1 (France)
Double PhD title *cum laude* in “Earth Science, Fluid-Dynamics and Mathematics. Interactions and Methods” & in “InfoMaths”
Date of the defence: 29/03/2022
Title of the thesis: *“Some stability and instability issues in the dynamics of highly rotating fluids”*

Supervisor: DEL SANTO Daniele (Università Degli Studi di Trieste, Italy)
Co-supervisor: FANELLI Francesco (Université Claude Bernard – Lyon 1, France)

Università Degli Studi di Trieste (Italy) – Dipartimento di Matematica e Geoscienze
LM-40 Laurea Magistrale (Master Degree)
Date: 25/10/2018
Title of the thesis: *“On the existence of infinite weak solutions for the Euler equations”*
Mark: 110/110 cum laude
Supervisor: DEL SANTO Daniele
Co-supervisor: CUCCAGNA Scipio

Università Degli Studi di Trieste (Italy) – Dipartimento di Matematica e Geoscienze
L-35 Laurea Triennale (Bachelor Degree)
Date: 22/09/2016
Title of the thesis: *“Perfect fluids – The Euler model”*
Mark: 110/110 cum laude
Supervisor: DEL SANTO Daniele

PUBLICATIONS

- 2023** - M. Kaucic, F. Piccotto, **G. Sbaiz**, G. Valentinuz: *“Optimal portfolio with sustainable attitudes under cumulative prospect theory”*. Journal of Applied Finance & Banking, **13**, n. 4, 65-86.
- M. Kaucic, F. Piccotto, **G. Sbaiz**, G. Valentinuz: *“A hybrid level-based learning swarm algorithm with mutation operator for solving large-scale cardinality-constrained portfolio optimization problems”*. Information Sciences, **634**, 321-339.
- D. Del Santo, F. Fanelli, **G. Sbaiz**, A. Wróblewska-Kamińska: *“On the influence of gravity in the dynamics of geophysical flows”*. Mathematics in Engineering, **5**, n. 1, paper n. 8, 33 pp.
- 2022** **G. Sbaiz**: *“Fast rotation limit for the 2-D non-homogeneous incompressible Euler equations”*. Journal of Mathematical Analysis and Applications, **512**, n. 1, 126140, 41 pp.
- 2021** D. Del Santo, F. Fanelli, **G. Sbaiz**, A. Wróblewska-Kamińska: *“A multiscale problem for viscous heat-conducting fluids in fast rotation”*. Journal of Nonlinear Science, **31**, n. 1, paper n. 21, 63 pp.

SUBMITTED PAPAERS

- 2023** - M. Kaucic, F. Piccotto, P. Rossi, **G. Sbaiz**, G. Valentinuz: *“The role of ESG ratings in investment portfolio choices”*
- **G. Sbaiz**, L. Kosloff: *“Fast rotation and inviscid limits for the SQG equation with general ill-prepared initial data”*
- 2022** M. Kaucic, F. Piccotto, **G. Sbaiz**: *“A constrained swarm optimization algorithm for large-scale long-run investments using Sharpe ratio-based performance measures”*

PHD THESIS

2022 *"Some stability and instability issues in the dynamics of highly rotating fluids"*
Discussed *cum laude* on the 29th March 2022, 173 pp.

TALKS

- 21/09/2023:** *"Some stability and instability features for Navier-Stokes-Fourier equations"* at MAIn PDEs Conference (Bertinoro, Italy)
- 30/06/2023:** *"A bio-inspired solver for sustainable portfolios with volatility control"* at 11th General AMaMeF Conference (Bielefeld, Germany)
- 15/06/2023:** *"An evolutionary algorithm for portfolio allocation problems with ESG benefits"* at MathRisk Conference on Numerical Methods in Finance (Udine, Italy)
- 08/06/2023:** *"The role of ESG ratings in investment portfolio decision-making"* at 22nd MIC 2023 (Trieste, Italy)
- 28/10/2022:** *"A hybrid level-based learning swarm optimizer for portfolio allocation models with ESG rating"* at International Fintech Research Conference (Milano, Italy)
- 24/09/2022:** *"A hybrid level-based learning swarm algorithm with mutation operator for solving large-scale cardinality-constrained portfolio optimization problems"* at AMASES 2022 Conference (Palermo, Italy)
- 08/09/2022:** *"A level-based learning swarm optimizer for large-scale portfolio allocation models with ESG merits"* at PRIMO Workshop (Trieste, Italy)
- 30/08/2022:** *"Interaction of multi-scales for fluids in fast rotation"* at Mathematics of geophysical fluid dynamic models of intermediate complexity (Reading, United Kingdom)
- 24/08/2022:** *"Fast rotation limit for the 2D density-dependent Euler system"* at Mathematical Fluid Mechanics In 2022 (Prague, Czech Republic)
- 24/02/2022:** *"The influence of gravity in the behaviour of geophysical flows"* Webinar at ESFM Presentation Days (Trieste, Italy)
- 23/04/2021:** *"Singular Perturbation Problems for Geophysical Flows"* Webinar at GIM Seminars
- 19/03/2021:** *"Interaction of multiple scales in geophysical fluid dynamics"* Webinar at CRISIS Kick-off event (Lyon, France)
- 25/02/2021:** *"Multi-scale Analysis in Geophysical Fluid-Dynamics"* Webinar at ESFM Presentation Days (Trieste, Italy)
- 06/10/2020:** *"Singular perturbation and multi-scale problems for fluids in fast rotation"* at Journée d'équipe EDPA (Lyon, France)
- 14/08/2020:** *"MPE Webinar"* at 2020 SIAM Mathematics of Planet Earth (Virtual Meeting)
- 08/06/2020:** *"A multi-scale problem for viscous heat-conducting fluids in fast rotation"* Webinar at Séminaire des Doctorants et Doctorantes (Lyon, France)
- 09/12/2019:** *"Mathematical models for atmospheric flows"* at ESFM Presentation Days (Trieste, Italy)
- 04/05/2018:** *"Algebraic equations: a journey through the history"* at Giornata di Formazione per Docenti di Scuole di ogni Ordine e Grado (Trieste, Italy)

ORGANIZATION OF EVENTS

2023 Organizer of *"MIC2023"* (Trieste, Italy)

2022 Organizer of *"Fluid-Dynamics Day"* (Trieste, Italy)

2021 Organizer of *"Séminaire des Doctorants et Doctorantes 2020-2021"* (Lyon, France)

- 2020** - Organizer of "Séminaire des Doctorants et Doctorantes 2020-2021" (Lyon, France)
- Organizer of "Mathematics of Planet Earth Webinars: Analysis and Modelling"

GRANTS AND PROJECTS

- CRISIS - "Critical Regularity, Interfaces, Scale Interactions and Singularities in the dynamics of non-homogeneous fluids" (February 2021-September 2023), supported by the ANR (Agence Nationale de la Recherche), Project "ANR JCJC 2020" (coordinator: FANELLI Francesco)
- "Su alcuni problemi di stabilità e instabilità nella dinamica dei fluidi in rotazione rapida"/C2-1288 (January 2020-December 2022), supported by Università Italo-Francese/Université Franco-Italienne in the program "Vinci 2020"

EDITORIAL AND REVIEWER ACTIVITIES

- Editorial Member for *Far East Journal of Applied Mathematics* (Pushpa Publishing House)
- Section Editor for *Journal of Applied Math* (Academic Publishing)
- Reviewer for *Journal of Mathematical Analysis and Applications* (Elsevier)
- Reviewer for *Pure and Applied Mathematics Journal* (SciencePG)
- Reviewer for *AIMS Mathematics* (AIMS Press)

COURSES, EXERCISE SESSIONS AND TUTORING ACTIVITIES

2023-2024 - Support course offered to undergraduate students: *Corso di supporto "Matematica per l'economia e la statistica 1"* DEAMS

- Exercise sessions offered to undergraduate students: *"Matematica Generale"* DEAMS

- Course offered to undergraduate students: *"Mathematics"* DEAMS

2022-2023 - Support course offered to undergraduate students: *Corso di supporto "Matematica per l'economia e la statistica 1"* DEAMS

- Exercise sessions offered to undergraduate students: *"Matematica Generale"* DEAMS

- Exercise sessions offered to undergraduate students: *"Calcolo delle Probabilità"* AI and Data Analytics degree

- Exercise sessions offered to undergraduate students: *"Analisi Matematica 2"* AI and Data Analytics degree

2021-2022 - Exercise sessions offered to undergraduate students: *"Matematica Generale"* DEAMS

- Complementary tutoring and teaching activities offered to undergraduate students: *"Metodi e Modelli Matematici per l'Intelligenza Artificiale"* AI and Data Analytics degree

2019-2020 Complementary tutoring and teaching activities offered to undergraduate students:
"Istituzioni di Matematica" STAN degree

PARTICIPATION IN CONFERENCES, SCHOOLS AND WORKSHOPS

- 2023**
- Conference: "MAIn PDEs" (Bertinoro, Italy)
 - Conference: "11th General AMaMeF Conference" (Bielefeld, Germany)
 - Conference: "MathRisk Conference on Numerical Methods in Finance" (Udine, Italy)
 - Conference: "22nd MIC 2023" (Trieste, Italy)
 - Conference: "ContOpt Pisa 2023" (Online)
- 2022**
- Workshop: "Metodi Quantitativi per il Fundraising" (Online)
 - Conference: "The 19th Chinese Finance Annual Meeting" (Online)
 - Conference: "International Fintech Research Conference" (Milano, Italy)
 - Workshop: "RISK2022" (Online)
 - Conference: "AMASES 2022" (Palermo, Italy)
 - Workshop: "2nd PRIMO" (Trieste, Italy)
 - Workshop: "Mathematics of geophysical fluid dynamic models of intermediate complexity" (Reading, United Kingdom)
 - Conference: "Mathematical Fluid Mechanics In 2022" (Prague, Czech Republic)
 - Workshop: "TURBIN – Turbulence and Intermittency" (Lyon, France)
- 2021**
- Workshop: "TURB1D 2021" (Online)
 - INdAM Workshop: "Qualitative properties of dispersive PDEs" (Online)
 - Workshop: "One World Meeting of Young Mathematicians in Fluid Dynamics" (Online)
 - INdAM Workshop: "Nonlinear Phenomena: between ODEs and PDEs" (Online)
 - Spring School: "Huitième école EGRIN" (Online)

 - Workshop: "CRISIS" kick off-event (Online)
 - Conference: "Journées Jeunes EDPistes 2021" (Online)
- 2020**
- Conference: "TURB1D 2020" (Online)
 - Winter School: "Turbulence in Fluids and PDEs" (Lausanne, Switzerland)
- 2019**
- IHP Trimester: "The Mathematics of Climate and the Environment" (Paris, France)
 - INdAM Workshop: "Anomalies in PDEs" (Roma, Italy)
 - Workshop: "Alessio Figalli, Fields Medallist 2018" (Pisa, Italy)
- 2018** Winter School: "Fluid-Dynamics, Dispersive Equations and Quantum Fluids" (Bressanone, Italy)

DISSEMINATION ACTIVITIES

2021 "PhD Top Stories" at UniTs

CO-SUPERVISION OF THESIS

2023 - *“Un confronto tra algoritmi di tipo swarm per problemi di grandi dimensioni”* (Bachelor student: Micaela Polo), Co-supervision with Massimilano Kaucic

2022 - *“Strategie di investimento con vincoli di sostenibilità”* (Bachelor student: Francesca Galuppo), Co-supervision with Massimilano Kaucic

- *“L’operatore Proximal: alcune applicazioni in ambito finanziario”* (Bachelor student: Alessio Visintini), Co-supervision with Massimilano Kaucic

LANGUAGES

Italian – Native speaker

English – Fluent

French – Intermediate level