

Samuel LANTHALER

PERSONAL DATA

• [GOOGLE SCHOLAR](#) • [ARXIV](#) • [ORCID](#) • [WEBSITE](#)

CITIZENSHIP: Switzerland | BORN: 18-Aug-1989
ADDRESS: Trichtenhauser Strasse 38, 8125 Zollikerberg, Switzerland
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EDUCATION

SINCE 11/2021	Postdoc/Lecturer in Mathematics at ETH Zurich, Switzerland Mentor: Prof. Siddhartha Mishra
11/2018 – 11/2021	PhD in Mathematics at ETH Zurich, Switzerland Thesis: “ Computation and analysis of statistical solutions of the incompressible Euler equations ” Advisor: Prof. Siddhartha Mishra
08/2015 – 08/2020	PhD in Physics at EPF Lausanne, Switzerland Thesis: “ Kinetic-MHD stability of virtually collisionless plasmas ” Advisor: Prof. Jonathan P. Graves
09/2013 – 03/2015	Master of Science in Mathematics , ETH Zurich
09/2010 – 09/2013	Bachelor of Science in Mathematics , ETH Zurich

SELECTED PUBLICATIONS

- “Error estimates for deepoanets: A deep learning framework in infinite dimensions”, S. Lanthaler, S. Mishra, G.E. Karniadakis, *Trans Math Appl*, **6**(1), (2022), [tnac001](#),
- “On universal approximation and error bounds for Fourier neural operators”, N. Kovachki, S. Lanthaler, S. Mishra, *JMLR*, **22**(290), (2021), 1-76
- “Statistical solutions of the incompressible Euler equations”, S. Lanthaler, S. Mishra, C. Parés-Pulido, *Math. Models Methods Appl. Sci. (M³AS)*, **31**(2), (2021), 223-292
- “On the conservation of energy in two-dimensional incompressible flows”, S. Lanthaler, S. Mishra, C. Parés-Pulido, *Nonlinearity*, **34**(2), (2021), 1084
- “On the convergence of the spectral viscosity method for the two-dimensional incompressible Euler equations with rough initial data”, S. Lanthaler, S. Mishra, *Found Comput Math*, **20**, (2020), 1309-1362

SCIENTIFIC PRESENTATIONS

- Minisymposium on “Operator Learning in PDEs, Inverse Problems, and UQ” [SIAM UQ22](#) (hybrid), Atlanta GA (2022),
- Minisymposium on “Recent Advances on Analysis and Numerics of Multidimensional Compressible Flows”, [SIAM PD22](#) (virtual), (2022),
- Swiss Numerics Day 2021*, EPF Lausanne, Switzerland (2021),
- Seminar on “Physics-Informed Learning Machines for Multiscale and Multiphysics Problems” ([PHILMs](#)), via Zoom, invited by G.E. Karniadakis, Brown University (2021),
- Minisymposium on *Incompressible Fluid Mechanics*, [SIAM PD19](#) in La Quinta, CA (2019),
- Workshop on *Interfaces and Instabilities in Fluid Dynamics* at the Hausdorff Research Institute in Mathematics in Bonn, Germany (2019),
- Invited speaker: *Theory of Fusion Plasmas* joint Varenna-Lausanne intl. workshop (2018),
- XV Intl. Conference on Hyperbolic Problems (Hyp2014)*, in Rio de Janeiro, Brazil (2014).

TEACHING EXPERIENCE

- **Lecturer** for “Numerical Methods for Hyperbolic PDEs” (ETH Zurich; Spring 2022)
- **Co-supervision of young researchers:** (ETH Zurich, Spring and Autumn 2021)
 - **master theses (3)** (Fabian Jin, 2021, awarded [ETH Medal](#); Patrik Hadorn, 2021; Michael Prasthofer, 2021),
 - **semester theses (2)** (Fabian Jin, 2021; Patrik Hadorn, 2021).
- **Head assistant for Linear Algebra** (autumn semesters 2019;2020;2021);
 - Conducting and organizing examinations, **350 students**,
 - Organization of exercise classes and exercises, **8 TAs**,
- **Class-room teaching:** TA for various courses at ETH Zurich and EPF Lausanne, in both *mathematics* and *physics*, including
 - Numerical Methods for Hyperbolic PDEs (ETHZ; 2019),
 - Mathematical Methods for Physicists (EPFL; 2017, 2018),
 - Advanced Physics (EPFL; 2017),
 - Computational Physics (EPFL; 2015, 2016),
 - Numerical Mathematics (ETHZ; 2013),
 - Differential Geometry (ETHZ; 2012)

RECOGNITION AND AWARDS

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| 05/2022 | ETH Medal (ETH Zurich)
Awarded for outstanding doctoral thesis |
| 01/2022 – 12/2024 | GAMM Junior Fellow
Elected by the International Association of Applied Mathematics and Mechanics (GAMM) for outstanding work in doctoral thesis (10 junior fellows per year) |
| 01/2015 | ETH Medal (ETH Zurich)
Awarded for outstanding master’s thesis |
| 09/2013 – 01/2015 | Excellence Scholarship and Opportunity Programme (ETH Zurich)
A special scholarship to cover the full study and living costs for the duration of master’s degree, as well as specific supervision. |
| 12/2013 | Polya prize (ETH Zurich)
Awarded for best bachelor’s degree in mathematics and physics. |

PROFESSIONAL SERVICE

- Journal referee for [Calcolo](#), [Journal of Scientific Computing](#), [IMA Journal of Numerical Analysis](#), [Communications in Computational Physics](#) and [SIAM Journal on Scientific Computing](#).

PROGRAMMING EXPERIENCE

Extended Experience: C++, FORTRAN-90/03 (with MPI-parallelization), MATLAB, PYTHON
Basic Knowledge: CUDA, OPENACC, HTML

LANGUAGES

ENGLISH:	Fluent (C2)	FRENCH:	Advanced (C1)
GERMAN:	Mother tongue	KOREAN:	Intermediate (B1)