

Raphael Stuhlmeier

CONTACT INFORMATION

School of Engineering, Computing & Mathematics
Plymouth University
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EMPLOYMENT

Lecturer in Applied Mathematics

2017 – present
Plymouth University – School of Engineering, Computing & Mathematics

Postdoctoral Fellow

2014 – 2017
Technion – Department of Civil & Environmental Engineering
Division of Environmental, Water & Agricultural Engineering

Research Assistant

2011-2014
University of Vienna – Faculty of Mathematics

EDUCATION

Doctoral Studies in Mathematics (Dr. rer. nat.)

2010 - 2014
University of Vienna, Vienna, Austria
Thesis: “Some investigations of nonlinear water waves with vorticity:
exact and approximate theories”.
Advisor: Prof. Adrian Constantin

Diploma Studies in Mathematics (Mag. rer. nat.)

2005 - 2010
University of Vienna, Vienna, Austria
Thesis: “On surface water waves and tsunami propagation”
Advisor: Prof. Adrian Constantin

PUBLICATIONS

20. R. Stuhlmeier and M. Stiassnie, Deterministic wave forecasting with the Zakharov equation, *J. Fluid Mech.*, (2021) **913**, A50.
19. M. Kluczek and R. Stuhlmeier, Mass transport for Pollard waves, *Applicable Analysis*, (2020) 10.1080/00036811.2020.1766029
18. R. Stuhlmeier, T. Vrecica, and Y. Toledo, Perspectives on random water waves in D. Henry et al (Eds) *Nonlinear Water Waves – An Interdisciplinary Interface*, Birkhäuser Verlag, 2019.

17. D. Andrade, R. Stuhlmeier, and M. Stiassnie, On the generalized kinetic equation for surface water waves, blow-up, and its restraint, *Fluids*, **4** (2019) 2.
16. R. Stuhlmeier and M. Stiassnie, Nonlinear dispersion for ocean surface waves *J. Fluid Mech.*, **859** (2019), 49–58.
15. R. Stuhlmeier and D. Xu, WEC design based on refined mean annual energy production for the Israeli Mediterranean coast, *J. Waterway, Port, Coastal, Ocean Engineering*, **144** (2018), 06018002.
14. R. Stuhlmeier and M. Stiassnie, Evolution of statistically inhomogeneous degenerate water wave quartets *Phil. Trans. Roy. Soc. – A*, **376** (2018), 20170101.
13. D. Xu, R. Stuhlmeier and M. Stiassnie, Assessing the size of a twin-cylinder wave energy converter designed for real sea-states, *Ocean Engineering*, **147** (2018), 243-255.
12. D. Xu, R. Stuhlmeier and M. Stiassnie, Harnessing wave power in open seas II – Very large arrays of wave energy converters for 2D sea-states, *J. Ocean Eng. Marine Energy*, **3** (2017), 151-160.
11. R. Stuhlmeier and M. Stiassnie, Adapting Havelock’s wave-maker theorem to acoustic-gravity waves, *IMA J. Appl. Math.*, **81** (2016), 631–646.
10. M. Stiassnie, U. Kadri and R. Stuhlmeier, Harnessing wave-power in open seas *J. Ocean Eng. Marine Energy*, **2** (2016), 47-57.
9. R. Stuhlmeier, Particle paths in Stokes’ edge wave *J. Nonlinear Math. Phys.*, **22** (2015), 507 - 515 .
8. R. Stuhlmeier, On Gerstner’s water wave and mass transport, *J. Math. Fluid. Mech.*, **17** (2015), 761–767.
7. R. Stuhlmeier, Internal Gerstner waves on a sloping bed *Discrete Contin. Dyn. Syst. Ser. A*, **34** (2014), 3183 - 3192.
6. M. Stiassnie and R. Stuhlmeier, Progressive waves on a blunt interface *Discrete Contin. Dyn. Syst. Ser. A*, **34** (2014), 3171 - 3182.
5. R. Stuhlmeier, Internal Gerstner waves: applications to dead water *Applicable Analysis*, **93** (2014), 1451–1457.
4. R. Stuhlmeier, On constant vorticity flows beneath two-dimensional surface solitary waves, *J. Nonlinear Math. Phys.*, **19** (2012), 1240004
3. R. Stuhlmeier, Effects of shear flow on KdV balance - applications to tsunamis, *Commun. Pure Appl. Anal.*, **11** (2012), 1549-1561
2. R. Stuhlmeier, On edge waves in stratified water along a sloping beach *J. Nonlinear Math. Phys.*, **18** (2011), 127-137
1. R. Stuhlmeier, KdV theory and the Chilean tsunami of 1960, *Discrete Contin. Dyn. Syst. Ser. B*, **12** (2009), 623-632

PRESENTATIONS AT CONFERENCES & SEMINARS

Fluid Dynamics Seminar

March 11, 2020, University of Warwick, UK.

Department Seminar

December 25, 2019, Faculty of Civil & Environmental Engineering, Technion, Israel.

Department Seminar

April 8, 2019, Faculty Engineering, Tel Aviv University, Israel.

Mathematics Seminar

March 11, 2019, University of Dundee, Scotland

Applied Mathematics Seminar

January 17, 2019, UCC, Cork, Ireland

Applied Mathematics Seminar

December 27, 2018, Tel Aviv University, Israel

Applied PDE Seminar

December 6, 2018, University of Washington, Seattle, USA

Applied Mathematics Seminar

October 21, 2018, University of East Anglia, UK

Society for Underwater Technology - Environmental Forces Meeting

May 24, 2018, University of Oxford, UK

British Applied Mathematics Colloquium

March 26–29, 2018, University of St. Andrews, UK

Applied Mathematics Seminar

January 30, 2018, Cardiff University, UK

Nonlinear Water Waves: An Interdisciplinary Interface

December 4–7, 2017, Erwin Schrödinger Institute, Vienna, Austria

COAST Seminar

28 November, 2017, Plymouth University, UK

Applied Mathematics Seminar

1 November, 2017, Plymouth University, UK

Symposium “Mathematics, waves and geophysical flow”

December 15–16, 2016, University of Bremen, Germany

2016 Burgers Research School on Fluid Dynamics

June 6 – 10, 2016, University of Maryland, College Park, MD, USA

Department Seminar

May 16, 2016, School of Mechanical Engineering, Tel Aviv University, Israel

Department Seminar

February 11, 2016, School of Mathematical Sciences, UCC, Cork, Ireland

Water Wave Dynamics

June 1–5, 2015, Faculty of Mathematics, Vienna, Austria

Department Seminar

March 3, 2015, Faculty of Civil & Environmental Engineering
Technion – Israel Institute of Technology, Haifa, Israel

Seminar – Waseda Lab

November 25, 2014, Department of Ocean Technology, Policy and Environment
University of Tokyo, Japan

Mathematical Colloquium

October 16, 2013, Department of Mathematics, University of Linköping, Sweden

CIME Course “Nonlinear Water Waves”

June 24–28, 2013, Centro Internazionale Matematico Estivo, Cetraro, Italy

Solitons in Two-Dimensional Water Waves and Applications to Tsunami

NSF/CBMS Regional Conference in the Mathematical Sciences
May 20–24, 2013, The University of Texas - Pan American

Mathematical Aspects of Water Waves

March 15–17, 2012, King’s College London, UK

IMA Conference on Nonlinearity and Coherent Structures

July 6–8, 2011, University of Reading, UK

European Geosciences Union General Assembly 2011

April 3–8, 2011, Vienna, Austria
Ocean Sciences 2.1 – Open Session on Coastal and Shelf Seas

Second Summer School on Analysis – *Spectral Theory and PDE*

September 13–17, 2010, Leibniz Universität Hannover, Germany

European Geosciences Union General Assembly 2010

May 2–7, 2010, Vienna, Austria
Ocean Sciences 21 – Recent developments in tsunami modeling and forecasting

SCHOLARSHIPS & GRANTS**EPSRC New Investigator Award (PI)**

Engineering & Physical Sciences Research Council
EP/V012770/1 – *Stochastic wave modelling for inhomogeneous sea-states*
£208,000, 2021–2023

LMS Celebrating New Appointments Grant

London Mathematical Society
March 2019

IMA Small Grant

Institute of mathematics & its applications
June 2018

Technion Postdoctoral Fellowship

Technion - Faculty of Civil & Environmental Engineering
February 2014 – September 2017

Lady Davis Postdoctoral Fellowship

Technion – Faculty of Civil & Environmental Engineering
September 2014 – September 2015

Performance Scholarship (“Leistungsstipendium”)

University of Vienna, 2010

TEACHING**University of Plymouth**

Fluid Dynamics	(MATH3629, 3rd year mathematics)
Numerical and Computational Methods	(MATH1610, 1st year mathematics)
Linear Algebra & Complex Numbers	(MATH1603, 1st year mathematics)
Mathematics for Computing	(MATH054, foundation computing)
Engineering Mathematics & Statistics	(MATH187, 2nd year engineering)
Engineering Mathematics & Control	(CONT221, 2nd year engineering)

Technion – Israel Institute of Technology

Partial Differential Equations	(2nd year engineering)
Differential Equations	(2nd year engineering)
Calculus Refresher for Hydrodynamics	(2nd year engineering)
Advanced Topics in Environmental Science	(graduate engineering)

PROFESSIONAL ACTIVITIES & SERVICE**Programme Manager for Transnational Education**

School of Engineering, Computing & Mathematics
University of Plymouth, UK

Postgraduate Certificate in Academic Practice (60 credits)

Plymouth University, UK
Sept. 2017 – Mar. 2019

Conference organization:

Water Waves - Mathematical Theory and Applications
Plymouth University – September 5–6, 2019

Seminar organization:

Plymouth University – Centre for Mathematical Sciences
Applied Mathematics Seminar (Co-organizer, 2018-present)

TAU-Technion Water Waves Seminar (Organizer and initiator, 2015-2016)
Jointly with School of Mechanical Engineering, Tel-Aviv University.

Grant reviewer:

EPSRC, UK
Erwin Schrödinger Institute for Mathematics & Physics, Vienna, Austria

Reviewer for academic journals:

Journal of Engineering Mathematics
Journal of Mathematical Physics
Journal of Fluid Mechanics

Philosophical Transactions of the Royal Society: A
Deep-Sea Research Part II
Nonlinear Analysis: Theory, Methods, & Applications
European Journal of Mechanics – B
Journal of Geophysical Research: Oceans
Zeitschrift für Angewandte Mathematik und Physik
Nonlinear Analysis: Real World Applications
Journal of Marine Science and Engineering
Fluids

Member of URKI ECR Forum

2021–present.

Society membership: LMS, IMA.