Raphael Stuhlmeier

CONTACT INFORMATION

School of Computing, Electronics & Mathematics
Plymouth University
Drake Circus
PL4 8AA Plymouth, UK
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EMPLOYMENT

Lecturer in Applied Mathematics
2017 – present
Plymouth University
School of Computing, Electronics & 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 (Ph.D.)
2010 - 2014
Advisor: Prof. Adrian Constantin
University of Vienna, Vienna, Austria
Thesis: "Some investigations of nonlinear water waves with vorticity: exact and approximate theories".

Diploma Studies in Mathematics (Mag. rer. nat.)
2005 - 2010
University of Vienna, Vienna, Austria
Thesis: "On surface water waves and tsunami propagation"

PUBLICATIONS

14. R. Stuhlmeier and M. Stiassnie, Evolution of statistically inhomogeneous degenerate water wave quartets
Phil. Trans. Roy. Soc. – A, (to appear).

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 tsunami,
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

PREPRINTS

15.* R. Stuhlmeier and D. Xu,
WEC design based on refined mean annual energy production
for the Israeli Mediterranean coast, *submitted*.

CONFERENCES & TALKS

Applied Mathematics Seminar
January 30, 2018, Cardiff University, UK
Presentation: *Evolution of statistically inhomogeneous degenerate water wave quartets*

Nonlinear Water Waves: An Interdisciplinary Interface
December 4-7, 2017, Erwin Schrödinger Institute, Vienna, Austria
Presentation: *Evolution of statistically inhomogeneous degenerate water wave quartets*

COAST Seminar
28 November, 2017, Plymouth University, UK
Presentation: *Linear theory of idealized cylindrical WECs*

Applied Mathematics Seminar
1 November, 2017, Plymouth University, UK
Presentation: *On particle trajectories in Stokes' edge waves*

Symposium "Mathematics, waves and geophysical flow"
December 15–16, 2016, University of Bremen, Germany
Poster presentation: *Havelock's theory for acoustic–gravity waves in deep water*

2016 Burgers Research School on Fluid Dynamics
June 6 – 10, 2016, University of Maryland, College Park, MD, USA
Poster presentation: *Wave-power harvesting in open seas.*

Department Seminar
May 16, 2016, School of Mechanical Engineering, Tel Aviv University, Israel
Presentation: *Havelock's theory for acoustic-gravity waves in deep water*

Department Seminar
February 11, 2016, School of Mathematical Sciences, UCC, Cork, Ireland
Presentation: *Large–scale wave power harvesting in deep water*

Water Wave Dynamics
June 1–5, 2015, Faculty of Mathematics, Vienna, Austria
Invited presentation: *On acoustic–gravity waves*

Department Seminar
March 3, 2015, Faculty of Civil & Environmental Engineering
Technion – Israel Institute of Technology, Haifa, Israel
Presentation: *Wave–power harvesting in open seas*

Seminar – Waseda Lab
November 25, 2014, Department of Ocean Technology, Policy and Environment
University of Tokyo, Japan
Presentation: *Interfacial Gerstner waves*

Mathematical Colloquium
October 16, 2013, Department of Mathematics, University of Linköping, Sweden
Presentation: *Interfacial Gerstner waves*

CIME Course "Nonlinear Water Waves"
June 24–28, 2013, Centro Internazionale Matematico Estivo, Cetraro, Italy
Presentation: *On some aspects of Gerstner's water wave:*
A review of recent developments

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
Presentation: *On constant vorticity flows beneath two-dimensional*
surface solitary waves

Mathematical Aspects of Water Waves
March 15–17, 2012, King's College London, UK
Invited presentation: *On constant vorticity flows beneath two-dimensional*
surface solitary waves

IMA Conference on Nonlinearity and Coherent Structures
July 6–8, 2011, University of Reading, UK
Presentation: *Effects of shear flow on KdV balance - with applications to tsunami*

European Geosciences Union General Assembly 2011
April 3–8, 2011, Vienna, Austria
Ocean Sciences 2.1 – Open Session on Coastal and Shelf Seas
Poster presentation: *Exact edge waves and stratified flow*

Second Summer School on Analysis – *Spectral Theory and PDE*
September 13–17, 2010, Leibniz Universität Hannover, Germany
Poster presentation: *Mathematical Aspects of Tsunami Modeling*

European Geosciences Union General Assembly 2010
May 2–7, 2010, Vienna, Austria
Ocean Sciences 21 – Recent developments in tsunami modeling and forecasting
Co-chair (with C. Synolakis)
Poster presentation: *Applicability of KdV theory to tsunami modeling*

Scholarships & Grants

Lady Davis Postdoctoral Fellowship
Technion – Faculty of Civil & Environmental Engineering
September 2014 – September 2015

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

NSF Funded Participant
NSF/CBMS Regional Conference in the Mathematical Sciences
"Solitons in Two-Dimensional Water Waves and Applications to Tsunami"
May 20–24, 2013

Performance Scholarship ("Leistungsstipendium")
University of Vienna, 2010

Teaching

Lecturer: Mathematics for Computing (Foundation Year)
Lecturer: Engineering Mathematics & Statistics
Plymouth University, Fall 2017

Teaching Assistant: "Partial Differential Equations"
Technion International School, Spring 2017

Teaching Assistant: "Differential Equations"
Technion International School, Fall 2016

Lecturer: "Calculus Refresher for Hydrodynamics"
Technion International School, Spring 2016

Lecturer: "Advanced Topics in Environmental Science"
Technion, Faculty of Civil & Environmental Engineering, Fall 2015, 2hrs

Professional activities

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

Reviewer:
Journal of Fluid Mechanics
Philosophical Transactions of the Royal Society: A
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
AMS Mathematical Reviews

Society membership: SIAM.

Research visits

Department of Applied Mathematics, School of Mathematical Sciences,
University College Cork, Ireland
February 2016

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

Faculty of Mathematics, University of Vienna, Austria
September 2014

Department of Mathematics, University of Linköping, Sweden
October 2013

NOAA/NWS Pacific Tsunami Warning Center,
September 2009

Department of Ocean and Resources Engineering, SOEST
University of Hawaii at Manoa, September 2009

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