Tomáš Dohnal

Contact Information	Institut für Mathematik Martin-Luther-Universitt Halle-Wittenberg 06099 Halle (Saale), Germany	Voice: +49-345-55-24625 E-mail: tomas.dohnal@mathematik.uni-halle.de http://pi.mathematik.uni-halle.de/~tdohnal	
Research Interests	 nonlinear wave propagation problems dispersive PDEs PDE asymptotics and their rigorous justification PDE bifurcation problems solitary waves in periodic structures and at surfaces 		
	• numerics for wave problems		
Education	Karlsruhe Institute of Technology, Karlsruhe, Germany		
	Habilitation	May 2012	
	• Localized Waves in Periodic Structures		
	University of New Mexico (UNM), Albuquerque, NM, USA		
	Ph.D., applied mathematics (defended with	distinction) Sep. 2002 - Jul. 2005	
	 dissertation title: Optical bullets in (2+1)D photonic structures and their interaction with localized defects advisor: Prof. Alejandro B. Aceves 		
	M.S., applied mathematics	Jan. 2001 - Aug. 2002	
	Technical University in Liberec, Liberec, Czech Republic		
	M.A., teaching of mathematics and of English as a foreign language 1995-2000		
Professional	Martin Luther University Halle-Wittenberg, Germany		
EXPERIENCE	Institute of Mathematics	from 2/2018	
	Professor in applied analysis		
	Technical University of Dortmund - Department of Mathematics, Germany		
	Institute of Analysis	9/2012 - $1/2017$	
	Juniorprofessor in applied analysis		
	Karlsruhe Institute of Technology - Department of Mathematics, Germany		
	Institute for Applied and Numerical Mathemat	<i>tics 3</i> 10/2011 - 8/2012	
	research: slowly varying envelope asymptotics of solitary waves, moving breather solitons, existence problems for nonlinear elliptic problems teaching: numerics of PDEs		
	Postdoc, Research Training Group 12947/2009 - 9/2010, 4/2011 - 9/2011'Analysis, Simulation and Design of Nanotechnological Processes'research: existence of gap soliton ground states, Evans function method		
	University of Stuttgart - Department of 'Professurvertretung' teaching: functional analysis, 'Computerprakti	Mathematics, Germany 10/2010 - 3/2011 ikum'	
	Humboldt Research Fellowship, University Institute for Applied and Numerical Mathemat host: Prof. Willy Dörfler	y of Karlsruhe, Germany tics 2 10/2007 - 6/2009	

research: coupled mode equations for gap solitons, Evans function teaching: applied math. seminar, math. modeling in natural sciences and engineering, mathematical topics in photonic crystals

ETH - Seminar for Applied Mathematics, Zürich, Switzerland

 Postdoc (group of Prof. Ralf Hiptmair)
 9/2005 - 10/2007

 research: perfectly matched layers, surface gap solitons, solitary waves in optical fibers with disorder
 teaching: geometric numerical integration, solitary waves and solitons, numerical mathematics, inverse problems

 University of New Mexico - Department of Mathematics, Albuquerque, NM, USA

 Research Assistant
 8/2003 - 7/2005

 nonlinear optics, pulse propagation in photonic structures

 principal investigator: Prof. Alejandro B. Aceves

 Research Assistant
 spring 2003

 discontinuous Galerkin methods for computations of wave propagation

 principal investigator: Prof. Timothy Warburton

 Teaching Assistant
 2001 - 2002

 teaching assistant of trigonometry, precalculus and calculus (4 semesters)

Los Alamos National Laboratories, group T7, Los Alamos, NM, USA

graduate student affiliate	summer 2004	
perturbed cubic-quintic Nonlinear Schrödinger Equation, deterministic	and stochastic	
mentor: Dr. Avner Peleg		

summer 2003

1999-00

graduate student affiliate continuum models in spreading of infectious diseases mentor: Dr. James M. Hyman

STUDENT SUPERVISION **Euroregionální Gymnázium** Liberec, Czech Rep. teaching of English language and theater

Dnaiel Tietz - PhD student, "Rigorous Asymptotics of Wavepackets of Surface Plasmon Polaritons," from 4/2018 ongoing.

Lisa Wahlers - PhD student, "Moving Gap Solitons and Breathers in Finite Contrast Media," from 10/2014 ongoing.

Daniel Rudolf - Master thesis - "Wavepackets and the Envelope Approximation in the Periodic NLS in \mathbb{R}^d , 4-10/2016.

Arthur Asenheimer - Master thesis - "Nonlinear Schrödinger Asymptotics for Wavepackets of a Cubically Nonlinear Wave Equation in Periodic Media," 8/2015-2/2016.

Michael Schaeper - Bachelor thesis: "Convex optimization in \mathbb{R}^n with constraints," TU Dortmund, 3-4/2015.

Emine Cambel - Bachelor thesis: "Floquet Theory and its Application to the Stability of Periodic Solutions," TU Dortmund, summer 2014.

Nino Ricchizzi - Bachelor thesis: "Lyapunov Method for Stability of ODEs," TU Dortmund, summer 2014.

Annemarie May - Bachelor thesis: "Local Theory for ODEs: Linearisation Method," TU

Dortmund, summer 2013.

	Nupur Aggarwal (IIT Delhi)- internship at Uni. Karlsruhe, topic: integration of the periodic nonlinear Schrödinger equation with a nonlinearity interface, May - Jul. 2009.	
	Elizabeth Blank - Diplomarbeit (~ Master thesis) on spectral stability of surface gap solitons via the numerical Evans function method, Uni. Karlsruhe, Aug. 2008 - Mar. 2009.	
	Nisha M. Kannookodan - term project on Finite Element Galerkin approximation of Dirac equations, ETH Zurich, 2007.	
	Sebastian Walter - term project on spurious reflections due to nonuniform grids in finite difference computations of solitary wave propagation, ETH Zurich, 2006.	
Honors and	2005 CAS Student Prize, Center for Advanced Study, UNM, May 2005.	
Awards	Kyner award: outstanding graduate student in applied mathematics, Department of Mathematics and Statistics, UNM, May 2004 $$	
	Outstanding graduate oral presentation in mathematics at "Symposium 2003: Championing Scientific Careers", Los Alamos National Laboratories, Aug. 2003	
Grants	<u>DFG Research Grant</u> 12/2018 - 11/2021	
	 ca. 199 000 ECK Title: Rigorous Asymptotics of Surface Plasmon Polariton Wavepackets in Nonlinear Media 	
	<u>DFG Research Grant</u> 10/2014 - 9/2017	
	 ca. 125 000 EUR Title: Moving Gap Solitons in Deep Periodic Structures with Transversally Crossing Bands 	
	<u>Humboldt-Fellowship</u> 10/2007 - 6/2009	
	 own postdoc position for 21 months Title: Gap Solitons in Nonlinear Periodic Media - Modeling, Numerical Computations and Simulations in Physical Processes 	

PERSONAL married, 3 children

INFORMATION