

Program of Conference on Mathematics of Wave Phenomena, Karlsruhe, February 24th-28th, 2025

	<b>Monday</b> February 24th, 2025	<b>Tuesday</b> February 25th, 2025	<b>Wednesday</b> February 26th, 2025	<b>Thursday</b> February 27th, 2025	<b>Friday</b> February 28th, 2025	
08:00-09:00	Registration	Registration	Registration	Registration	Registration	08:00-09:00
09:00-09:10	Opening	Plenary Talk <b>Joly</b>	Plenary Talk <b>Wayne</b>	Plenary Talk <b>Cakoni</b>	Plenary Talk <b>Schlag</b>	09:00-09:45
9:10-09:55	Plenary Talk <b>Kaltenbacher</b>					
09:55-10:10		Plenary Talk <b>Ifrim</b>	Plenary Talk <b>Guenneau</b>	Plenary Talk <b>Banjai</b>	Plenary Talk <b>Hohage</b>	10:00-10:45
10:10-10:55	Plenary Talk <b>Herr</b>					
10:55-11:10		Coffee Break • Registration	Coffee Break • Registration	Coffee Break • Registration	Coffee Break	11:00-11:30
11:10-11:30	Coffee Break • Registration					
11:30-11:45		Contributed talks CT4 and Minisymposia 2, 3, 9, 19, 22, 23	Contributed talks CT5, CT6 and Minisymposia 1, 14, 15, 16, 17	Contributed talks CT8 and Minisymposia 4, 7, 8, 11, 13, 16	Plenary Talk <b>Hiptmair</b>	11:30-12:15
11:45-12:30	Contributed talks CT1 and Minisymposia 10, 12, 18, 19, 21, 23					
12:30-13:00		Lunch Break	Lunch Break	Lunch Break	Break	12:30-13:00
13:00-13:15						
13:15-13:30		Lunch Break	Lunch Break	Lunch Break	Guided tours	13:00-13:30
13:30-14:30	Lunch Break					
14:30-15:00		Lunch Break	Lunch Break	Lunch Break	Guided tours	13:30-14:30
15:00-16:00	Contributed talks CT2 and Minisymposia 10, 12, 18, 21, 23					
15:00-16:00		Minisymposia 2, 9, 10, 14, 15, 21	Contributed talks CT7 and Minisymposia 1, 8, 9, 14, 15, 17	Contributed talks CT9 and Minisymposia 1, 6, 8, 11, 20		15:00-15:30
15:30-16:00						15:30-16:00
16:00-16:30	Coffee Break • Registration	Coffee Break • Registration	Coffee Break • Registration	Coffee Break • Registration		16:00-16:30
16:30-18:00	Contributed talks CT3* and Minisymposia 3*, 10, 12, 18*, 19*, 23	Minisymposia 2, 5*, 9*, 14, 15, 17*, 22	Minisymposia 4*, 7*, 8*, 11*, 13, 16*, 17	Contributed talks CT10 and Minisymposia 4, 6, 7, 8, 13, 20		16:30-18:00
18:00-18:30				Break		18:00-18:30
18:30-21:30	Note: * indicates that an afternoon sessions ends at 18:30.			Conference Dinner	Version of February 21st, 2025	18:30-21:30

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**List of minisymposia**

- 1 [Dissipative Patterns and Waves](#)  
Organizers: Joannis Alexopoulos and Björn de Rijk
- 2 [Numerical Methods for Nonlinear and Nonlocal Transient Phenomena](#)  
Organizers: Lehel Banjai and María López-Fernández
- 3 [Intersection of Biomedical Acoustics and Machine Learning](#)  
Organizers: Marta Betcke, Ben Cox, and Matthew King
- 4 [Asymptotic Models in Fluid Dynamics and Pattern Formation](#)  
Organizers: Gabriele Brüll, Christina Lienstromberg, and Wolf-Patrick Düll
- 5 [Nonlinear Waves in Cardiac Tissue](#)  
Organizers: Martina Chirilus-Bruckner and Tim de Coster
- 6 [Mathematics of Acoustic Nonlinearity Tomography](#)  
Organizers: Ben Cox, Barbara Kaltenbacher, Felix Lucka, and Vanja Nikolić
- 7 [Nonlinear Maxwell Equations](#)  
Organizers: Tomáš Dohnal and Wolfgang Reichel
- 8 [Discretizations of Nonlinear and Multiscale Wave-Type Problems](#)  
Organizers: Benjamin Dörich, Patrick Henning, and Roland Maier
- 9 [Water Waves and Dispersive Equations](#)  
Organizers: Mats Ehrnström and Douglas Svensson Seth
- 10 [Bifurcation and Pattern Formation in Dynamical Systems](#)  
Organizers: André H. Erhardt, Bastian Hilder, and Jörg Weber
- 11 [Monotonicity and Convexity in Inverse Coefficient Problems](#)  
Organizers: Henrik Garde and Bastian Harrach
- 12 [Computational Boundary Integral Equation Methods for Time-Dependent Waves](#)  
Organizers: Heiko Gimperlein and Jörg Nick
- 13 [Wave Propagation in Random Multi-Scale Media and Applications](#)  
Organizers: Laure Giovangigli and Mathias Schäffner
- 14 [Analysis and Numerics for PDEs with Nonstandard and Mixed Boundary/Interface Conditions](#)  
Organizer: Martin Halla
- 15 [Novel Approaches to Inverse Problems in Wave Scattering and Propagation](#)  
Organizers: Isaac Harris and Jacob Rezac
- 16 [\(In-\)Stability, Dispersion and Weak Turbulence: From Fluid Flow to Hamiltonian Systems](#)  
Organizers: Zihui He, Lars Eric Hientzsch, and Tobias Schmid
- 17 [Analysis and Numerical Simulation of Wave Scattering by Periodic Structures](#)  
Organizers: Guanghui Hu and Ruming Zhang
- 18 [Recent Methods in Nonlinear Dispersive Waves](#)  
Organizers: Mihaela Ifrim and Daniel Tătaru
- 19 [Spectral Theory and Applications](#)  
Organizers: Illia Karabash, Konstantin Pankrashkin, and Olaf Post
- 20 [Nonlocal Dispersive Equations](#)  
Organizers: Christian Klein and Nikola Stoilov
- 21 [Kerr Frequency Combs – From Models to Experiments and Back](#)  
Organizers: Christian Koos and Wolfgang Reichel
- 22 [Long Wave Approximations in Homogeneous, Periodic and Stochastic Media](#)  
Organizers: Xian Liao and Guido Schneider
- 23 [Waveguides](#)  
Organizers: Ben Schweizer and Andreas Kirsch

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**List of contributed talk sessions**

CT1 Fei, Blick

CT2 Elling, Neelam

CT3 Dörich, Santos, Scheifinger, Cao

CT4 Baldelli, Henninger, Hong

CT5 Ostermann, Ruff, Mödl

CT6 Bora, Saha, Tombuloğlu

CT7 Arora, Sharma

CT8 Tsukerman, Rockstuhl, Alexopoulos

CT9 Vishwakarma, Kumawat

CT10 Anderson, Wisse

Monday, February 24th, 2025

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
08:00-09:00	Registration						
09:00-09:10	Opening						
09:10-09:55	Plenary Talk • <b>Barbara Kaltenbacher</b> – <i>Forward and Inverse Problems in Nonlinear Acoustics</i>						
09:55-10:10							
10:10-10:55	Plenary Talk • <b>Sebastian Herr</b> – <i>The Cubic Nonlinear Schrödinger Equation on the 2D Torus</i>						
10:55-11:10							
11:10-11:45	Coffee Break • Registration						
11:45-13:15	<b>Minisymposium 10</b> <i>Bifurcation and Pattern Formation in Dynamical Systems</i>	<b>Minisymposium 12</b> <i>Computational Boundary Integral Equation Methods for Time-Dependent Waves</i>	<b>Minisymposium 18</b> <i>Recent Methods in Nonlinear Dispersive Waves</i>	<b>Minisymposium 19</b> <i>Spectral Theory and Applications</i>	<b>Minisymposium 21</b> <i>Kerr</i> <i>Frequency Combs – From Models to Experiments and Back</i>	<b>Minisymposium 23</b> <i>Waveguides</i>	<b>Contributed talks</b> CT1
13:15-15:00	Lunch Break						
15:00-16:00	<b>Minisymposium 10</b>	<b>Minisymposium 12</b>	<b>Minisymposium 18</b>		<b>Minisymposium 21</b>	<b>Minisymposium 23</b>	<b>Contributed talks</b> CT2
16:00-16:30	Coffee Break • Registration						
16:30-18:00	<b>Minisymposium 10</b>	<b>Minisymposium 12</b>	<b>Minisymposium 18</b>	<b>Minisymposium 19</b>	<b>Minisymposium 3</b> <i>Intersection of Biomedical Acoustics and Machine Learning</i>	<b>Minisymposium 23</b>	<b>Contributed talks</b> CT3
18:00-18:30							

Tuesday, February 25th, 2025

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
08:00-09:00	Registration						
09:00-09:45	Plenary Talk • <b>Patrick Joly</b> – <i>Mathematical Models and Results for Time Domain Electromagnetic Wave Propagation in Dispersive Media</i>						
09:45-10:00							
10:00-10:45	Plenary Talk • <b>Mihaela Ifrim</b> – <i>The Small Data Global Well-Posedness Conjecture for Defocusing Dispersive Flows</i>						
10:45-11:00							
11:00-11:30	Coffee Break • Registration						
11:30-13:00	<b>Minisymposium 2</b> <i>Numerical Methods for Nonlinear and Nonlocal Transient Phenomena</i>	<b>Minisymposium 3</b> <i>Intersection of Biomedical Acoustics and Machine Learning</i>	<b>Minisymposium 9</b> <i>Water Waves and Dispersive Equations</i>	<b>Minisymposium 19</b> <i>Spectral Theory and Applications</i>	<b>Minisymposium 22</b> <i>Long Wave Approximations in Homogeneous, Periodic and Stochastic Media</i>	<b>Minisymposium 23</b> <i>Waveguides</i>	<b>Contributed talks</b> CT4
13:00-15:00	Lunch Break						
15:00-16:00	<b>Minisymposium 2</b>	<b>Minisymposium 10</b> <i>Bifurcation and Pattern Formation in Dynamical Systems</i>	<b>Minisymposium 9</b>	<b>Minisymposium 14</b> <i>Analysis and Numerics for PDEs with Nonstandard and Mixed Boundary/Interface Conditions</i>	<b>Minisymposium 21</b> <i>Kerr</i> <i>Frequency Combs – From Models to Experiments and Back</i>	<b>Minisymposium 15</b> <i>Novel</i> <i>Approaches to Inverse Problems in Wave Scattering and Propagation</i>	
16:00-16:30	Coffee Break • Registration						
16:30-18:00	<b>Minisymposium 2</b>	<b>Minisymposium 5</b> <i>Nonlinear Waves in Cardiac Tissue</i>	<b>Minisymposium 9</b>	<b>Minisymposium 14</b>	<b>Minisymposium 22</b>	<b>Minisymposium 15</b>	<b>Minisymposium 17</b> <i>Analysis and Numerical Simulation of Wave Scattering by Periodic Structures</i>
18:00-18:30							

Wednesday, February 26th, 2025

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
08:00-09:00	Registration						
09:00-09:45	Plenary Talk • <b>Eugene Wayne</b> – <i>Breathers and the Implicit Function Theorem</i>						
09:45-10:00							
10:00-10:45	Plenary Talk • <b>Sébastien Guenneau</b> – <i>Cloaking Fields and Twinning Spectra</i>						
10:45-11:00							
11:00-11:30	Coffee Break • Registration						
11:30-13:00	<b>Minisymposium 1</b> <i>Dissipative Patterns and Waves</i>	<b>Minisymposium 14</b> <i>Analysis and Numerics for PDEs with Nonstandard and Mixed Boundary/Interface Conditions</i>	<b>Minisymposium 15</b> <i>Novel Approaches to Inverse Problems in Wave Scattering and Propagation</i>	<b>Minisymposium 16</b> <i>(In-)Stability, Dispersion and Weak Turbulence: From Fluid Flow to Hamiltonian Systems</i>	<b>Minisymposium 17</b> Analysis and Numerical Simulation of Wave Scattering by Periodic Structures	<b>Contributed talks</b> CT5	<b>Contributed talks</b> CT6
13:00-15:00	Lunch Break						
15:00-16:00	<b>Minisymposium 1</b>	<b>Minisymposium 14</b>	<b>Minisymposium 15</b>	<b>Minisymposium 9</b> <i>Water Waves and Dispersive Equations</i>	<b>Minisymposium 17</b>	<b>Minisymposium 8</b> <i>Discretizations of Nonlinear and Multiscale Wave-Type Problems</i>	<b>Contributed talks</b> CT7
16:00-16:30	Coffee Break • Registration						
16:30-18:00	<b>Minisymposium 4</b> <i>Asymptotic Models in Fluid Dynamics and Pattern Formation</i>	<b>Minisymposium 7</b> <i>Nonlinear Maxwell Equations</i>	<b>Minisymposium 11</b> <i>Monotonicity and Convexity in Inverse Coefficient Problems</i>	<b>Minisymposium 16</b> <i>(In-)Stability, Dispersion and Weak Turbulence: From Fluid Flow to Hamiltonian Systems</i>	<b>Minisymposium 17</b>	<b>Minisymposium 8</b>	<b>Minisymposium 13</b> <i>Wave Propagation in Random Multi-Scale Media and Applications</i>
18:00-18:30							

Thursday, February 27th, 2025

	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
08:00-09:00	Registration						
09:00-09:45	Plenary Talk • <b>Fioralba Cakoni</b> – <i>The Control of Scattered Field for Linear and Nonlinear Scattering Media</i>						
09:45-10:00							
10:00-10:45	Plenary Talk • <b>Lehel Banjai</b> – <i>Successes and Challenges of Numerical Time-Domain Boundary Integral Equations</i>						
10:45-11:00							
11:00-11:30	Coffee Break • Registration						
11:30-13:00	<b>Minisymposium 4</b> <i>Asymptotic Models in Fluid Dynamics and Pattern Formation</i>	<b>Minisymposium 7</b> <i>Nonlinear Maxwell Equations</i>	<b>Minisymposium 8</b> <i>Discretizations of Nonlinear and Multiscale Wave-Type Problems</i>	<b>Minisymposium 11</b> <i>Monotonicity and Convexity in Inverse Coefficient Problems</i>	<b>Minisymposium 16</b> <i>(In-)Stability, Dispersion and Weak Turbulence: From Fluid Flow to Hamiltonian Systems</i>	<b>Minisymposium 13</b> <i>Wave Propagation in Random Multi-Scale Media and Applications</i>	<b>Contributed talks</b> CT8
13:00-15:00	Lunch Break						
15:00-16:00	<b>Minisymposium 1</b> <i>Dissipative Patterns and Waves</i>	<b>Minisymposium 6</b> <i>Mathematics of Acoustic Nonlinearity Tomography</i>	<b>Minisymposium 8</b>	<b>Minisymposium 11</b>	<b>Minisymposium 20</b> <i>Nonlocal Dispersive Equations</i>		<b>Contributed talks</b> CT9
16:00-16:30	Coffee Break • Registration						
16:30-18:00	<b>Minisymposium 4</b>	<b>Minisymposium 6</b>	<b>Minisymposium 8</b>	<b>Minisymposium 7</b>	<b>Minisymposium 20</b>	<b>Minisymposium 13</b>	<b>Contributed talks</b> CT10
18:00-18:30	Break						
18:30-21:30	Conference Dinner						

Friday, February 28th, 2025

Session 1	
08:00-09:00	Registration
09:00-09:45	Plenary Talk • <b>Wilhelm Schlag</b> – <i>The Distorted Fourier Transform, and the Linearized Ginzburg-Landau Operator</i>
09:45-10:00	
10:00-10:45	Plenary Talk • <b>Thorsten Hohage</b> – <i>Imaging the Solar Interior with Randomly Excited Waves</i>
10:45-11:00	
11:00-11:30	Coffee Break
11:30-12:15	Plenary Talk • <b>Ralf Hiptmair</b> – <i>Boundary Integral Exterior Calculus</i>
12:15-12:30	
12:30-13:30	Break
13:30-15:30	Guided tours