UNIVERSITÄT BAYREUTH

5th Workshop
Stability and Control of Infinite-Dimensional Systems

September 30 - October 2, 2026
Bayreuth, Germany



SCINDIS 2026

Invited speakers

Nikolaos Bekiaris-Liberis *(TU Crete, Greece)*
Lucas Brivadis *(L2S, CNRS, France)*
Emilia Fridman *(U Tel Aviv, Israel)*
Jochen Glück *(U Wuppertal, Germany)*
Martin Gugat *(FAU Erlangen-Nürnberg, Germany)*
Rami Katz *(U Tel Aviv, Israel)*
Volker Mehrmann *(TU Berlin, Germany)*
Kirsten Morris *(U Waterloo, Canada)*
Cristina Pignotti *(U L'Aquila, Italy)*
Nathanael Skrepek *(U Twente, Netherlands)*

Organizers

Sergey Dashkovskiy
Birgit Jacob
Andrii Mironchenko
Fabian Wirth

Venue

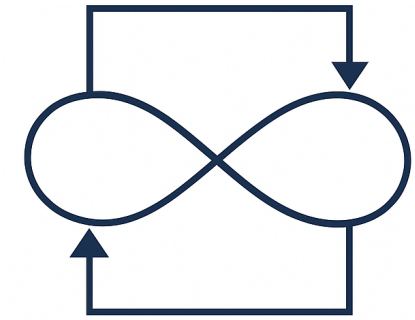
University of Bayreuth
Lecture halls H18, H20

Universitätsstraße 30
95447 Bayreuth

CRC 1701 PORT-HAMILTONIAN SYSTEMS

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SCINDIS
2026

5th Workshop on Stability and Control of Infinite-Dimensional Systems

Conference Programme

September 30 - October 2, 2026
University of Bayreuth, Germany

Version:
November 10, 2026

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Welcome

Welcome to the fifth Workshop on Stability and Control of Infinite-Dimensional Systems (SCINDIS 2026), held at the University of Bayreuth from September 30 to October 2, 2026.

Scope of the Workshop

The scope of SCINDIS includes:

- stability and control of partial differential equations;
- stability and control of time-delay systems;
- input-to-state stability of infinite-dimensional systems;
- stabilizability of infinite-dimensional systems;
- semigroup and admissibility theory;
- infinite-dimensional port-Hamiltonian systems;
- optimization-based control of PDEs.

History of SCINDIS

SCINDIS was founded in 2016 by Sergey Dashkovskiy, Birgit Jacob, Andrii Mironchenko, and Fabian Wirth as a recurring workshop series devoted to stability and control of infinite-dimensional systems.

2026
- **University of Bayreuth**
  September 30 - October 2, 2026
  70 participants from 15 countries

2023
- **University of Wuppertal**
  September 27 - 29, 2023
  65 participants from 12 countries.

2021
- **Online**
  September 27 - 29, 2021
  The third workshop, originally planned as the 2020 edition, was conducted online because of the coronavirus pandemic. 160 registered participants from 28 countries.

2018
- **University of Würzburg**
  October 10 - 12, 2018
  66 participants from 21 countries.

2016
- **University of Passau**
  October 12 - 14, 2016
  47 participants from 12 countries.

Local Organisation Team



Andrii Mironchenko (General Chair)

University of Bayreuth, Germany

Mironchenko is a Heisenberg Group Leader at the University of Bayreuth. He enjoys working on stability theory, nonlinear systems theory, distributed-parameter systems, hybrid systems, and applications of control theory to biological systems and distributed control.

Official profile: `http://mironchenko.com/index.php/en/`



Andrea Groll (Local Arrangements & Finance Chair)

University of Bayreuth, Germany

Andrea Groll is a team assistant at the Chair of Applied Mathematics and the Chair of Nonlinear Analysis and Mathematical Physics and is the person you should contact whenever you have questions or suggestions during the workshop. She is also responsible for organising events for the Department of Mathematics, including the annual Day of Mathematics and the Math Olympiad in Bavaria 2025. See also MOBy e.V..

Official profile: `https://num.math.uni-bayreuth.de/en/team/andrea-groll/`



Robert Baier (IT Solutions & Web Chair)

University of Bayreuth, Germany

Robert Baier is an Academic Director at the Chair of Applied Mathematics at the University of Bayreuth. When time allows, Robert Baier focuses on set-valued numerical analysis (interpolation, integration, and selections of set-valued maps), differential inclusions, and methods for computing reachable sets in optimal control, as well as on nonconvex subdifferentials and DC functions with applications in nonsmooth analysis.

Official profile: `https://num.math.uni-bayreuth.de/en/team/robert-baier/`

Organizers of the SCINDIS Workshop Series



Sergey Dashkovskiy

University of Würzburg, Germany

Sergey Dashkovskiy is a professor and head of the working group Dynamical Systems and Control Theory at the University of Würzburg. His research focuses on nonlinear control systems, input-to-state stability, interconnected and large-scale systems, and infinite-dimensional systems.

Official profile: https://www.mathematik.uni-wuerzburg.de/dynamicsandcontrol/team/dashkovskiy-sergey/



Birgit Jacob

University of Wuppertal, Germany

Birgit Jacob is a professor and head of the working group Functional Analysis at the University of Wuppertal. Her research concerns operator semigroups, well-posed linear systems, port-Hamiltonian systems, and infinite-dimensional systems and control.

Official profile: https://www.fan.uni-wuppertal.de/en/personen/details/jacob/



Andrii Mironchenko

University of Bayreuth, Germany

Mironchenko is a Heisenberg group leader at the University of Bayreuth. He enjoys working on stability theory, nonlinear systems theory, distributed-parameter systems, hybrid systems, and applications of control theory to biological systems and distributed control.

Official profile: http://mironchenko.com



Fabian Wirth

University of Passau, Germany

Fabian Wirth is a professor and head of the working group Dynamical Systems at the University of Passau. His research includes nonlinear and switched systems, stability and Lyapunov theory, input-to-state stability, and control of infinite-dimensional systems.

Official profile: https://www.fim.uni-passau.de/en/dynamical-systems/

Schedule

Wednesday, September 30, 2026

08:30–09:00 Registration

09:00–09:10 Opening

Morning session

09:10–09:55 Volker Mehrmann *(Technische Universität Berlin, Germany)*
PDF Long- and short-time decay of solutions of evolution equations

10:00–10:45 Kirsten Morris *(University of Waterloo, Canada)*
PDF Establishing uniform stability of approximated infinite-dimensional systems

10:45–11:10 *Coffee & Tea*

Noon session

11:10–11:55 Martin Gugat *(University of Erlangen–Nuremberg, Germany)*
PDF Stabilizability of hyperbolic systems by boundary control: the influence of time-delay and the quasi-linear case

12:00–12:45 Nathanael Skrepek *(University of Twente, The Netherlands)*
Semi-uniform stability of Maxwell's equations via boundary feedback

12:45–14:30 *Lunch Break*

Afternoon session

14:30–15:00 Jerome Loheac *(CNRS / University of Lorraine, France)*
PDF A general framework for the flatness of parabolic linear systems with boundary controls

15:05–15:35 Chiara Cicolani *(University of Wuppertal, Germany)*
Asymptotic consensus and flocking under decaying persistent excitation on rooted digraphs

15:40–16:10 Tobias Ritschel *(Technical University of Denmark)*
PDF Erlang ODE approximation of differential equations with distributed time delays

16:10–16:35 *Coffee & Tea*

16:35–18:30 Poster Session I

Thursday, October 1, 2026

Morning session

09:00–09:45 Cristina Pignotti *(University of L'Aquila, Italy)*
Generalized Korteweg–de Vries–Burgers equations with time-varying delay: well-posedness and exponential stability

09:50–10:35 Nikolaos Bekiaris-Liberis *(Technical University of Crete, Greece)*
Micro-macro PDE control under implementation limitations of large-scale transport systems

10:35–11:00 *Coffee & Tea*

Noon session

11:00–11:45 Jochen Glück *(University of Wuppertal, Germany)*
Positivity in infinite-dimensional systems theory

11:50–12:20 Alexander Wierzba *(University of Wuppertal, Germany)*
BIBO stability in infinite dimensions: some counterexamples and observations

12:20–12:30 *Group Photo*

12:30–14:30 *Lunch Break*

14:30–16:25 **Poster Session II**

16:25–16:50 *Coffee & Tea*

Afternoon session

16:50–17:20 Irina Aleksandrova *(University of Bonn, Germany)*
Delay periodic Lyapunov equation

17:25–17:55 Mathieu Bajodek *(CNRS, LAGEPP, France)*
PDF **Lyapunov PINN for stability analysis of infinite-dimensional systems**

18:00–18:30 Yacine Chitour *(Université Paris-Saclay, France)*
Necessary and sufficient conditions for exact controllability of linear controlled difference equations in L^r spaces, $r \in (1, \infty)$.

19:30–22:30 *Conference Dinner*

Friday, October 2, 2026

Morning session

09:00–09:45 Rami Katz *(Tel Aviv University, Israel)*
Spectral reconstruction of 1d reaction-diffusion systems from measurements via algebraic super-resolution methods

09:50–10:35 Lucas Brivadis *(CNRS, L2S, France)*
PDF **A backstepping-KKL observer for a cascade of a nonlinear ODE with a linear PDE**

10:35–11:00 *Coffee & Tea*

Noon session

11:00–11:30 Martin Lazar *(University of Dubrovnik, Croatia)*
Turnpike property for the twofold control

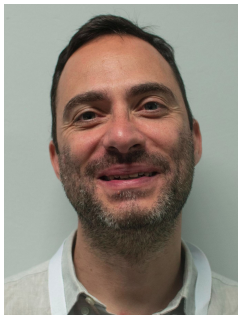
11:35–12:20 Emilia Fridman *(Tel Aviv University, Israel)*
PDF **Constructive methods for robust control of distributed parameter systems**

12:20–12:30 **Closing**

12:30–13:30 *Lunch*

Invited Speakers

The invited speakers are listed alphabetically.



Nikolaos Bekiaris-Liberis

Technical University of Crete, Greece

Micro-macro PDE control under implementation limitations of large-scale transport systems

Abstract: Although "transport" may imply different notions for different scientific fields, the feature of incorporation of interacting system components through which "information" is propagated remains invariant. I will present control-theoretic results for biological transport systems, which describe epidemic spreading dynamics (via people transport) and cardiovascular flow dynamics (via blood transport). In particular, I will present numerical implementations of macroscopic, coupled crowd flow - epidemics spreading processes, subject to different macro-control measures; while studying blood transport stability in the presence of stenosis. I will then present computationally tractable control designs for large-scale hyperbolic PDEs, whose complexity does not grow with the number of PDE system components. I will also present averaged and quantized predictor-feedback designs for ODE systems subject to switching and quantization.



Lucas Brivadis

CNRS, L2S, France

PDF A Backstepping-KKL observer for a cascade of a nonlinear ODE with a linear PDE

Abstract: In this talk, we propose an observer design for a cascade of an arbitrary nonlinear ODE with a linear PDE (specifically, a 1D heat equation). The nonlinear output of the ODE imposes a boundary condition on one side of the PDE, while the measured output is on the other side.

The observer design combines an infinite-dimensional Kazantzis–Kravaris/Luenberger (KKL) observer for the ODE with a backstepping observer for the heat equation. This construction is the first extension of the KKL methodology to infinite-dimensional systems. We establish the convergence of the observer under a differential observability condition on the ODE. We will also give some insights for the generalization of the results to other PDEs.



Emilia Fridman

Tel Aviv University, Israel

PDF Constructive Methods for Robust Control of Distributed Parameter Systems

Abstract: Some PDEs may not be robust with respect to arbitrary small time-delays in the feedback. Robust control of PDE systems is therefore a challenging problem. In this talk, the following two constructive methods for delay-robust control will be briefly discussed:

1) the spatial decomposition (or sampling in space) method, where the spatial domain is divided into N subdomains with N sensors and actuators located in each subdomain;

2) the modal decomposition method, where the controller is designed on the basis of a finite-dimensional system that captures the dominant dynamics of the infinite-dimensional one.

Recent results based on modal decomposition for finite-dimensional boundary control of parabolic-elliptic and non-standard singularly perturbed heat equations will be presented, where the observer dimension and a bound on the small parameter can be found from LMIs. Extensions of the method to higher-order semilinear PDEs will also be discussed.



Jochen Glück

University of Wuppertal, Germany

Positivity in infinite-dimensional systems theory

Abstract: For linear partial differential equations it is a classical question whether positive initial values lead to positive solutions. This property naturally occurs in many models from e.g. physics and biology and, remarkably, it is often quite helpful in the mathematical analysis of such models.

If an input term is added to the differential equation – i.e. if we consider an infinite-dimensional linear control system – a comprehensive theory of positivity is still under development. In this talk we give an overview of some central ideas of this topic and demonstrate how positivity can help in the analysis of such systems.



Martin Gugat

University of Erlangen–Nuremberg, Germany

PDF Stabilizability of hyperbolic systems by boundary control: The influence of time-delay and the quasi-linear case

Abstract: A celebrated example by Bastin and Coron illustrates the limits of stabilizability by boundary control for hyperbolic systems (see the book Stability and Boundary Stabilization of 1-D Hyperbolic Systems). We discuss the effect of time delay in the control loop in this context. Since many systems in engineering are governed by nonlinear PDEs, we also discuss sufficient conditions for the stabilizability of quasi-linear hyperbolic systems by boundary controls.



Rami Katz

Tel Aviv University, Israel

Spectral reconstruction of 1D reaction-diffusion systems from measurements via algebraic super-resolution methods

Abstract: Stabilization of 1D reaction-diffusion systems is a ubiquitous task in numerous applications in physics and electrical engineering. A common assumption in various stabilization schemes, such as modal decomposition, is that the spatial differentiation operator is known, whence its spectrum is available for control input design. However, in many applications, the exact form of the spatial differentiation operator is not known, and only a finite number of system measurements is available, thereby requiring estimation of the spectrum of the differentiation operator. In this talk, I will present a novel method for performing such a spectrum estimation, which is based on tools from algebraic super-resolution theory and signal processing. I will further provide rigorous theoretical guarantees for reconstruction in the presence of structured measurement noise.

Joint work with Dmitry Batenkov (Tel Aviv University) and Giulia Giordano (University of Trento)

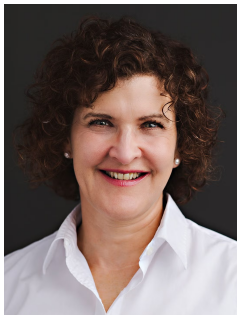


Volker Mehrmann

Technische Universität Berlin, Germany

PDF Long- and Short-Time Decay of Solutions of Evolution Equations

Abstract: The long- and short-time behavior of solutions to dissipative (Hamiltonian) evolution equations is studied by applying the concept of hypocoercivity. The analysis is performed for general evolution equations that allow for a modal decomposition having a scaled family of generators. We also present an analysis for finite-dimensional linear and nonlinear systems.



Kirsten Morris

University of Waterloo, Canada

PDF Establishing uniform stability of approximated infinite-dimensional systems

Abstract: Controller design for infinite-dimensional systems is often accomplished using a finite-dimensional approximation. For a system that is exponentially stable, it is reasonable to expect the approximation to preserve exponential decay. Preservation of the decay rate is important for realistic simulations and also for reliable controller design. Examples illustrating the problems that can occur even in simple problem will be given. It will be shown that a number of standard approximations of port-Hamiltonian systems are not only structure-preserving but also preserve a uniform decay rate. The proof is based on extending a classical approach to PDE stability analysis to discretized systems.



Cristina Pignotti

University of L'Aquila, Italy

Generalized Korteweg–de Vries–Burgers equations with time-varying delay: well-posedness and exponential stability

Abstract: We investigate a generalized Korteweg–de Vries–Burgers equation on the real line with indefinite damping and a time-varying delay. By combining semigroup techniques with suitable Lyapunov functionals, we establish the global well-posedness of the problem under appropriate growth assumptions on the nonlinear term, assuming only that the delay is continuous. We then derive exponential stability estimates under suitable assumptions on the model parameters, thereby improving existing results in the literature. For sufficiently regular time-varying delays, these conditions are independent of the delay magnitude.



Nathanael Skrepek

University of Twente, The Netherlands

Semi-uniform stability of Maxwell's equations via boundary feedback

Abstract: We regard the undamped Maxwell's equations as a boundary control and observation system on a bounded Lipschitz domain. We apply a feedback control law that stabilizes the system in a semi-uniform manner without any further geometrical assumption on the domain. This will be achieved by separating the equilibriums from the system and show that the remaining system is described by an operator with compact resolvent. Finally, we will apply a unique continuation principle on the resolvent equation to show that there are no eigenvalues on the imaginary axis.

Contributed Talks

C1. Irina Aleksandrova *(University of Bonn, Germany)*

Delay periodic Lyapunov equation

Abstract: For linear periodic finite-dimensional systems, it is well-known that, first, exponential stability is equivalent to the existence of a unique periodic positive definite solution to the Lyapunov equation, and second, the Lyapunov equation admits a unique periodic solution, if and only if the monodromy matrix has no reciprocal eigenvalues. In this talk, we discuss generalization of these results to the case of periodic evolution families on Hilbert spaces, with application to the stability theory of linear periodic time delay systems with constant delays. An explicit connection between the infinite-dimensional periodic Lyapunov equation on a Hilbert space and the delay Lyapunov matrix framework which stems from the Lyapunov—Krasovskii stability conditions for linear periodic time delay systems is established. Based on this connection, we prove the uniqueness theorem of the delay Lyapunov matrix, where the uniqueness condition — that the monodromy operator has no reciprocal eigenvalues — naturally extends the corresponding condition for the ODE case. The delay Lyapunov matrix is defined in the literature as a solution of the delayed hyperbolic matrix PDE with a non-standard boundary condition along with the symmetry and periodicity properties, which makes its construction a nontrivial problem. In the second part of the talk, we address the construction issue for a particular case when the period of the system matrices is equal to the delay. In particular, the explicit construction for the case of a scalar equation is given.

This is a joint work with Prof. Dr. Juan J.L. Velázquez at the University of Bonn.

C2. Mathieu Bajodek *(CNRS LAGEPP, France)*

PDF Lyapunov PINN for stability analysis of infinite-dimensional systems

Abstract: In control theory, a central problem is the construction of a Lyapunov functional for a linear dynamical system. The associated Lyapunov operator plays a fundamental role in stability analysis: its positivity characterizes exponential stability and provides valuable information on the dissipative properties and dynamics of the system. While existence and uniqueness results for Lyapunov operators are well established, their explicit computation becomes challenging in infinite-dimensional spaces, where classical finite-dimensional techniques are no longer directly applicable. This motivates the development of computational approaches capable of approximating Lyapunov operators directly from the underlying operator equation. In this talk, we focus on a Physics-Informed Neural Network (PINN) approach for the approximation of Lyapunov operators. The Lyapunov equation is incorporated into the neural network loss function, allowing the operator to be approximated while enforcing the governing operator equation and relevant structural properties, such as symmetry and positivity. This provides a mesh-free framework that is particularly well suited to infinite-dimensional systems and partial differential equations. We present the formulation and numerical implementation of the PINN methodology and discuss its ability to approximate Lyapunov operators without relying on an explicit finite-dimensional representation. Finally, we apply the proposed approach to hyperbolic partial differential equations, illustrating how PINNs can be used to construct and approximate Lyapunov functionals for distributed-parameter systems and to assess their stability and dissipative properties.

C3. Yacine Chitour *(Université Paris-Saclay, France)*

Necessary and sufficient conditions for exact controllability of linear controlled difference equations in L^r spaces, $r \in (1, \infty)$.

Abstract: In this talk I will present recent work bringing a complete answer to Hautus type conditions for the exact controllability of linear controlled difference equations in L^r spaces, $r \in (1\infty)$, completing earlier work in the case $r = 1$. As a corollary, we provide rapid stabilization results and show how to extend that work to classes of hyperbolic systems.

This is a joint work with S. Fueyo, P. Lissy and G. Mazanti

C4. Chiara Cicolani *(University of Wuppertal, Germany)*

Asymptotic consensus and flocking under decaying persistent excitation on rooted digraphs.

Abstract: In this talk, the author will present recent results for consensus-based and flocking models, with non-universal interaction, time delays, and possible communication failures. In particular, extending previous results, they allow the amount of interaction between the agents over fixed-length time intervals to decay polynomially. For the first-order Hegselmann-Krause type model, they prove asymptotic convergence to consensus, and for the second-order Cucker-Smale model, the authors establish asymptotic flocking under an additional assumption on the decay of the influence function. These results show that collective behavior can still emerge under progressively weakening communication and without requiring strong connectivity of the interaction graph.

C5. Martin Lazar *(University of Dubrovnik, Croatia)*

Turnpike property for the twofold control.

Abstract: We present the newly introduced notion of *twofold control*, in which the initial state and the control input are optimised simultaneously. The main idea is to distribute the available control effort between preparing a suitable initial state and applying the subsequent control input. This additional degree of freedom can substantially reduce the required control energy and enlarge the set of reachable states.

Special attention is devoted to the case of a cost functional penalising the deviation of the state from a prescribed constant-in-time trajectory, which is the classical setting in which the turnpike property arises. We analyse the asymptotic behaviour of optimal twofold controls as the time horizon tends to infinity and investigate whether, and under which conditions, the turnpike property persists in this new control framework.

C6. Jerome Loheac *(CNRS / University of Lorraine, France)*

PDF A general framework for the flatness of parabolic linear systems with boundary controls

Abstract: In this talk, I will develop a general framework for the flatness of parabolic linear systems with boundary controls. The approach considers an abstract boundary control system where the underlying operator generates an analytic semigroup and possesses a spectrum of isolated eigenvalues with finite multiplicities. By assuming the existence of an entire function of order lower than one that satisfies the eigenvalue equation for the system operator, we establish a general null-controllability result. For any time greater than a specific threshold – determined by the condensation of the spectrum and the growth of the eigenfunctions – there exists a control and a corresponding state with Gevrey regularity. Using this framework, we recover various results in the literature but also show some general flatness properties for cascade systems and the simultaneous controllability of some parabolic systems. Applications to the degenerate heat equation and coupled heat equations will be given.

This work has been done in collaboration with Takéo Takahashi.

C7. Tobias Ritschel *(Technical University of Denmark, Denmark)*

PDF Erlang ODE approximation of differential equations with distributed time delays

Abstract: The complexity of differential equations with distributed time delays limits their use in modeling, estimation, control, and optimization of time delay systems. Therefore, we propose to approximate the memory kernel in the convolution in the distributed time delay by an exponentially weighted polynomial, referred to as an Erlang mixture approximation. The reason is that the approximate set of delay differential equations (DDEs) can be transformed analytically to ordinary differential equations (ODEs). We refer to this as the Erlang ODE approximation of the DDEs, and we show that under mild conditions on the state space and the memory kernel, the solution and steady state of the ODE approximation converge to those of the original DDEs. The utility and convergence rate of the approximation are illustrated with numerical examples.

C8. Alexander Wierzba *(University of Wuppertal, Germany)*

BIBO stability in infinite dimensions: some counterexamples and observations

Abstract: Bounded-input bounded-output stability (BIBO), that is, the property of an input-output system that inputs uniformly bounded in time give rise to outputs uniformly bounded in time, has applications, for instance, in the design of novel control techniques. While this notion is a classical and well-studied one for linear finite-dimensional systems, when turning to infinite-dimensional systems such as boundary-controlled PDEs, the situation becomes more complex.

In this talk, we want to give some examples where this difference becomes apparent, and answer questions on generalizing results from the finite to the infinite-dimensional case. This includes, for instance, the characterization of BIBO stable systems by convolution operators, and the relation to other stability concepts and the notions of observability and controllability.

This talk is based upon joint work with Sahiba Arora, Jochen Glück and Felix L. Schwenninger.

Poster Session I (Wednesday)

Here we list only confirmed poster presentations. Some speakers have not confirmed their presentations. If you do not see your name on the list, please email us to confirm, and we will add your abstract. We have some extra poster stands, so please do not worry about this.

P1. Jannik Daun *(Bergische Universität Wuppertal, Germany)*

PDF **On the Hautus test for exact observability of normal semigroups**

Abstract: Let T be an exponentially stable strongly continuous semigroup, A its generator, and C an admissible observation operator. We consider the modified Russell–Weiss conjecture: If (A, C) satisfies the infinite-dimensional Hautus test and T is similar to a contraction semigroup, then (A, C) is exactly observable. We disprove this conjecture by constructing a counterexample. In contrast, we prove that the Hautus test implies exact observability when A is self-adjoint.

P2. Pascal Heymoss *(University of Wuppertal, Germany)*

Decay Rates and Domain Dependence of a Coupled Wave-Heat System

Abstract: We study the asymptotic behavior of a coupled wave-heat system, which consists of a wave equation and a heat equation (with non-trivial heat coefficients) on two adjacent Lipschitz domains coupled by a common interface. We first establish asymptotic stability of the system, with the of aim later improving this by establishing specific, non-uniform rates of energy decay. Secondly, we analyze how decay rates of the coupled wave-heat system depend on the domain and the heat coefficients. This allows us to extend results of the existing literature to non-trivial, spatially dependent heat coefficients on less regular (Lipschitz) domains. Thirdly, we discuss three new geometric conditions on the wave domain and how they alone can be sufficient to prove or disprove the existence of polynomially fast decay rates.

P3. Mariem Jakhoukh *(University of Wuppertal, Germany)*

Some results on stability radii of infinite dimensional port-Hamiltonian systems

Abstract: In this poster, we treat the strong stability radius of infinite-dimensional port-Hamiltonian (pH) systems under structure-preserving perturbations. In particular, we consider the operator $A = (J-R)Q$ and analyze perturbations of the form $A_\Delta = (J-(RB\Delta B^*))Q$. We also address the exponential stability radius and perturbations of the operators J and Q.

P4. Richard Nutt *(Karlsruher Institut für Technologie, Germany)*

PDF Exponential Stability and Observabilty of the Maxwell System with Conductivity near the Boundary

Abstract: We study the anisotropic, quasilinear Maxwell system on a bounded domain Ω with perfectly conducting boundary conditions. It is damped via a conductivity σ which is strictly positive on a collar at the boundary. We prove that solutions decay exponentially to 0, if the fields have no magnetic charges on Ω, no electric charges off the support of σ, and initial data are small. Our approach is adapted from the linear case and relies on a splitting of the solution via Helmholtz decompositions and an observability-type estimate for a related system without charges, shown using Morawetz multipliers. For simply connected domains, scalar coefficients, and a uniformly positive conductivity this problem was considered in [1] and [2]. For simply connected domains, anisotropic coefficients, and uniformly positive σ the problem was considered in [3].

This is joint work with Roland Schnaubelt (KIT).

References:

[1] S. Nicaise and C. Pignotti, Internal stabilization of Maxwell's equations in heterogeneous media, *Abstr. Appl. Anal.* **7** (2005), pp. 791–811.

[2] K. D. Phung, Contrôle et stabilisation d'ondes électromagnétiques, *ESAIM Control Optim. Calc. Var.* **5** (2000), pp. 87–137.

[3] I. Lasiecka, M. Pokojovy and R. Schnaubelt, Exponential decay of quasilinear Maxwell equations with interior conductivity, *NoDEA Nonlinear Differential Equations Appl.* **26** (2019) Paper No. 51, 34.

P5. Benedikt Oppeneiger *(Technische Universität Chemnitz, Germany)*

Coercivity-inducing feedback stabilizability and spatial decay of perturbations

Abstract: We study the stabilization of elliptic and parabolic partial differential equations through the notion of coercivity-inducing feedback stabilizability. This property requires the existence of a feedback law that renders the closed-loop operator coercive and thereby provides exponential stability without overshoot. We consider this mechanism on the abstract operator level and give several characterizations. Based on these results we investigate the robustness of optimal control on large networks of elliptic equations with regard to spatially localized perturbations. By combining coercivity-inducing feedback stabilizability with suitable coercivity estimates and coupling assumptions that are uniform in the domain size, we are able to show, that the influence of the perturbation on the optimal control and state trajectory decays exponentially with the distance from the source of the perturbation. The theoretical results are supported by numerical simulations illustrating this behaviour.

P6. Hamza Ouchoutta *(Ibnou Zohr University, Morocco)*

PDF Well-posedness for a class of input-output second-order linear systems

Abstract: This poster presents a rigorous abstract framework ensuring the well-posedness of a class of integrodifferential input-output systems in Hilbert spaces. Motivated by the second-order equations governing thermal transport in linear thermoelastic materials, we specifically investigate the following

system:

$$\begin{cases} \ddot{x}(t) + \nu\dot{x}(t) + \int_0^t a(t-s)\dot{x}(s)\,ds = Ax(t) + \gamma A\dot{x}(t) + \int_0^t b(t-s)Kx(s)\,ds + Bu(t), \\ \begin{bmatrix} x(0) \\ \dot{x}(0) \end{bmatrix} = \begin{bmatrix} x_0 \\ x_1 \end{bmatrix}, \qquad t \geq 0, \end{cases}$$

augmented by the observation equation

$$y(t) = C\dot{x}(t), \qquad t \geq 0.$$

Our primary contribution is demonstrating that such systems give rise to well-posed linear systems in the sense of Weiss and Salamon, and providing an explicit form for their corresponding transfer functions. The theoretical findings are ultimately validated through a detailed application to a model of rigid heat conductors.

P7. Hannes Wagener *(University of Wuppertal, Germany)*

PDF **Real and complex stability radii for a class of transport networks.**

We characterize stability and its robustness for a class of boundary controlled, boundary observed hyperbolic partial differential equations. In particular, we show that asymptotic and exponential stability coincide for this class. Furthermore, we introduce the real and complex stability radii for which we give explicit formulas.

Based on arXiv:2607.12812:

P8. Tobias Winterhager *(Technische Universität Berlin, Germany)*

Lifting Time-Dependent Nonlinear Systems via a Perron-Frobenius-like Evolution Family

Abstract: The Koopman operator framework has become a powerful tool for analyzing nonlinear dynamical systems by transforming their complex behaviors into linear evolution in a function space. While widely applied in engineering, physics, and data science, theoretical foundations for time-dependent systems remain underdeveloped.

In this poster, we analyze time-dependent nonlinear control systems $\dot{x}(t) = f(t, x)$ on a bounded domain $\Omega \subseteq \mathbb{R}^n$. We introduce a Perron-Frobenius-like operator $S^{(t,t_0)}$ acting on densities in $L^p(\Omega)$, which captures the transport of densities under the flow Φ^{t,t_0}. The dual concept, a Koopman-like operator acting on observables, arises naturally in this framework.

We characterize the infinitesimal generators of these families, showing that they provide unique weak solutions to associated infinite-dimensional linear systems. Additionally, we define a quadratic cost functional and the corresponding observability Gramian, which satisfies a Lyapunov equation.

This framework bridges finite-dimensional control theory and infinite-dimensional linear systems, enabling new theoretical and computational tools for analyzing time-dependent nonlinear dynamics.

Poster Session II (Thursday)

Here we list only confirmed poster presentations. Some speakers have not confirmed their presentations. If you do not see your name on the list, please email us to confirm, and we will add your abstract. We have some extra poster stands, so please do not worry about this.

P9. Tighana Wenge Basele *(Bauhaus-Universität Weimar, Germany)*

A Converse Lyapunov Framework for Weak Convergence of Averaged Operators

Abstract: Weak convergence is fundamental to many averaged algorithms in Hilbert spaces, yet it falls outside classical converse Lyapunov theory, which relies on norm convergence. We bridge this gap using stability with respect to two measures. We first extend to arbitrary Banach spaces the equivalence between $\mathcal{KL}$-stability and the existence of continuous Lyapunov functions with respect to two measures. We then identify measures for averaged operators that characterize weak convergence, yielding a converse Lyapunov theorem for κ-averaged operators on Hilbert spaces. Under a natural $\mathcal{K}_\infty$-equivalence assumption, the Lyapunov function can be chosen Lipschitz continuous and weak convergence is strengthened to strong convergence. The framework applies to projection algorithms, including alternating projections and the Douglas–Rachford algorithm, and reveals a connection between converse Lyapunov theory and nonlinear error bounds.

P10. Oussama Bengoua *(Université Grenoble Alpes, France)*

Finite-dimensional controllers for parabolic systems

Abstract: Our work studies output regulation for parabolic distributed-parameter systems modeled as self-adjoint operators with compact inverse on a Hilbert space, of which the multi-dimensional heat equation is taken as an example. Although it was proven that the infinite-dimensional regulator equations admit a solution, the resulting regulator is itself infinite-dimensional and not implementable. Existing finite-dimensional approaches achieve only robust regulation via internal-model-based controllers obtained through numerical model reduction. This paper instead solves the regulator equations directly for an N-mode modal truncation of the plant, yielding an explicit finite-dimensional feedback/feedforward controller. It is shown that the truncated transfer operator converges in norm to its infinite-dimensional counterpart and that the control effort required can be bounded uniformly in the truncation order N. In addition, the asymptotic tracking error vanishes as $N \to \infty$, yielding the first convergence result of this kind for finite-dimensional exact output regulation of parabolic systems. The approach is illustrated on an one-dimensional heat equation with a spatially distributed patch actuator and an averaged temperature measurement, where the regulator solvability condition is verified analytically and the predicted convergence is confirmed numerically.

P11. Samir Boujijane *(Mohammed VI Polytechnic University, Morocco)*

PDF Asynchronous exponential growth of an age-structured population model with unbounded birth process

Abstract: We study the age-structured equation

$$\partial_t u(t,a) + \partial_a u(t,a) = -\mu(a)u(t,a), \qquad t \geq 0,\ a \in [0, a_m),$$

with delayed boundary condition

$$u(t,0) = \int_0^{a_m} \beta(a)\, u(t-r,a)\, \mathrm{d}a, \qquad u(s,\cdot) = u_0(s,\cdot), \quad -r \le s \le 0,$$

where $0 < a_m \le \infty$, $\mu \in L^\infty_{\mathrm{loc}}(0,a_m)$, $\beta \in L^\infty(0,a_m)$ and $r > 0$ is a discrete delay. The delay turns the birth term into an unbounded operator acting at the boundary, which puts the model outside the reach of bounded-perturbation arguments.

Working on a product space with an L^p history component, we obtain well-posedness from the Weiss–Staffans perturbation theorem for regular linear systems, together with a variation of constants formula. The difficulty is then the essential spectral radius of the solution semigroup $(T(t))_{t\ge 0}$, which is not eventually compact. We approximate the convolution term in the variation of constants formula by compact operators converging in the operator norm and deduce $\omega_{\mathrm{ess}}(T) < \omega_0(T)$. Asynchronous exponential growth follows, with an explicit spectral projection and limiting age profile, valid for every sign of $\omega_0(T)$, and settles the discrete delay case left open by Piazzera and Tonetto. Numerical simulations based on a discretization of the model complete the picture.

Joint work with Said Boulite and Lahcen Maniar.

P12. Qiaoling Chen *(University of Passau, Germany)*

PDF From Detectability of Linear Systems to Exponential Output-to-State Stability and Back

Abstract: We study exponential output-to-state stability (eOSS) of linear infinite-dimensional systems in Banach spaces with bounded output operators. It is shown that eOSS is equivalent to the existence of a coercive eOSS Lyapunov function in implication form. Also, exponential detectability guarantees the existence of a coercive eOSS Lyapunov function in dissipation form and therefore eOSS. Counterexamples demonstrate that the converse implications fail in general: exponential zero-detectability does not imply eOSS, eOSS does not imply the existence of an eOSS Lyapunov function in dissipation form, which, in turn, does not imply exponential detectability. If the unstable subspace is finite-dimensional, zero-detectability implies exponential detectability and yields equivalent characterizations of eOSS. The results are illustrated with a parabolic equation.

P13. Bouchra Elghazi *(University of Wuppertal, Germany)*

Stabilization of a class of boundary controlled port-Hamiltonian system

Abstract: The input-to-state stability of a class of infinite-dimensional second-order port-Hamiltonian systems on a one-dimensional spatial domain is analyzed under nonlinear dynamic boundary feedback and boundary disturbances. Using energy methods in the port-Hamiltonian framework, we obtain sufficient conditions that guarantee uniform input-to-state stability of the closed-loop system.

P14. Ivan Hasenohr *(University of Klagenfurt, Austria)*

PDF **Computer-assisted proofs of non-reachability for linear parabolic control problems**

Abstract: Analysing reachability for a control system is a subtle issue, especially for infinite-dimensional dynamics under bounded control constraints. We develop a computer-assisted framework for establishing non-reachability in linear parabolic PDEs governed by strongly elliptic operators, extending recent finite-dimensional techniques to the PDE setting.

For a closed convex reachable set and a convex target, non-reachability is equivalent to finding a dual certificate at which a suitable functional is negative. Linearity makes this functional computable by pulling the support function of the reachable set back through the endpoint map and reducing its evaluation to a control-independent adjoint equation. Our certification combines numerical search and regularisation with explicit convergence estimates for space–time discretisations of the adjoint equation and interval arithmetic for round-off errors.

For the one-dimensional heat equation with local nonnegative controls, we certify non-reachability of a target with a corner, whose rough dual certificate must first be regularised. The resulting interval enclosure proves non-reachability with tight, balanced error bounds.

P15. Tayeb Larhmaid *(ENSAM, Hassan II University, Morocco)*

PDF **Stabilization of a class of delayed non-homogeneous semilinear systems via multiplicative feedback control**

Abstract: In this paper, we investigate the feedback stabilization of a class of semilinear non-homogeneous systems with distributed delay by means of a parametrized inequality. Based on the choice of this parameter, the proposed feedback law ensures either exponential or polynomial stabilization, providing a unified stabilization framework. For the bilinear case, we study the feedback stabilization problem by employing a suitable decomposition of the state space and reducing the stabilization problem to its finite-dimensional unstable component. Finally, illustrative examples are provided to support the theoretical findings.

P16. Lucas Moschen *(Imperial College London, United Kingdom)*

Controlling Multi-Agent Systems: Local Convexification and Stabilisation of Mean-Field Systems

Abstract: Building on the feedback stabilization framework that we developed for McKean-Vlasov PDEs, we treat a class of entropy-regularized free energies $\mathcal{F} = \mathcal{E} + \sigma\mathrm{Ent}$ on the flat torus, with $\mathcal{E}$ possibly nonconvex and nonlocal, and show that the resulting controlled system admits a gradient flow formulation in Wasserstein space. Specifically, we realize the Wasserstein Hessian at a target stationary measure $\bar{\mu}$ as a self-adjoint operator with compact resolvent and show that its negative is unitarily equivalent to the generator of the linearized dynamics. The resulting feedback stabilization can then be interpreted as a local convexification of the free energy landscape: for any prescribed threshold $\delta > 0$, the control, obtained from an algebraic Riccati equation for the linearized problem, induces a finite-rank perturbation of the Wasserstein Hessian that lifts its spectrum above δ, yielding local displacement convexity on a Hölder neighborhood of $\bar{\mu}$ in regimes where the uncontrolled energy is nonconvex or slowly contracting. Under a local well-posedness assumption, $\bar{\mu}$ is moreover a locally exponentially stable equilibrium of the closed-loop dynamics, with rate at least δ. The framework covers McKean-Vlasov models and extends to moment-constrained Fokker-Planck dynamics and Fokker-Planck equations on closed Riemannian

manifolds.

Joint work with Dante Kalise and Greg Pavliotis.

P17. Violaine Piengeon *(University of Namur, Belgium)*

Observer-based positive stabilization of a 1D diffusion system with boundary control and observation.

Abstract: Positive linear systems constitute a significant class of dynamical systems due to their occurrence in a wide range of applications. In many control design problems, the preservation of positivity is a fundamental requirement. This poster presents an analytical study of the observer-based positive stabilization problem for a generic 1D diffusion system with boundary control and observation. It is shown that the considered system cannot be positively stabilized using an observer-based state feedback of the considered form and related to a positive state observer. Motivated by this limitation, an alternative control design methodology is developed. Beyond ensuring closed-loop stability, the proposed framework focuses on guaranteeing the nonnegativity of the real state trajectory for all nonnegative initial conditions, rather than that of the estimated state. This objective is achieved by characterizing nontrivial and readily implementable admissible sets of initial estimation errors.

P18. Philip Preußler *(University of Twente, The Netherlands)*

On the equivalence of integral ISS and ISS for linear systems

Abstract: The concepts of input-to-state stability (ISS) and integral input-to-state stability (iISS), introduced by Sontag in the 1980s and 1990s, are known to be equivalent for finite-dimensional linear systems in a straightforward manner. A more delicate situation emerges in the infinite-dimensional case: for bounded control operators, the finite-dimensional proof can be adapted; for unbounded control operators, arising, e.g., from boundary control systems, the question of equivalence of ISS and iISS has been open for the last decade.

In specific cases, under assumptions on the semigroup, e.g., for diagonal systems, the equivalence has previously been shown using a characterization of ISS by admissibility with respect to Orlicz spaces. We present a proof for general linear systems on large classes of Banach spaces, including reflexive spaces. The results are based on the Orlicz-admissibility criterion and a general weak compactness argument. The proof makes use of sun-duality theory and a classical result due to de la Vallee Poussin.

Moreover, we provide an overview of applications of the general proof technique in related areas. Among these are admissibility results, simplifications of well-known perturbation theorems and a new proof of Guerre-Delabriere's theorem on L^1-maximal regularity.

This is joint work with Felix L. Schwenninger (University of Twente)

P19. Till Preuster *(Chemnitz University of Technology, Germany)*

PDF Optimization-Based Control by Interconnection of Nonlinear Port-Hamiltonian Systems

Abstract: We propose a control-by-interconnection scheme in which the controller is a continuous-time primal-dual gradient flow associated with a finite-horizon, input-constrained optimal control problem.

Exploiting the port-Hamiltonian structure of this optimization flow allows a power-preserving interconnection with the nonlinear plant. A time-scale parameter renders the closed loop singularly perturbed: the reduced dynamics recover the optimal finite-horizon feedback, while the boundary layer describes convergence of the primal-dual variables to the optimality system. Via a composite Lyapunov function, we establish asymptotic stability of the coupled plant–controller dynamics - local for sufficiently fast optimization, and global under additional assumptions. A nonlinear port-Hamiltonian oscillator illustrates the approach.

P20. Andreas Schroll *(Julius-Maximilians-Universität Würzburg, Germany)*

ISS of infinite-dimensional discrete-time systems

Abstract: ISS-like properties of infinite-dimensional discrete-time systems are studied and selected properties are compared with their continuous-time counterparts. Characterizations of these properties in the form of superposition theorems are developed and relations between them are discussed, e.g. ISS is equivalent to UBIBS and UAG or iISS implies 0-UGAS. We also compare some results with their finite-dimensional counterparts. Furthermore, results regarding Lyapunov functions are presented. Illustrative examples are given to demonstrate selected relations.

List of Participants



List of confirmed participants (as of September 17, 2026).

Overall, there are 70 participants from 15 countries.

Nr.	Full name	Affiliation	Country
1.	Ahmed Abbassi	ENS of Boussada	Algeria
2.	Irina Aleksandrova	University of Bonn	Germany
3.	Murad Babayev	TU Imenau	Germany
4.	Robert Baier	University of Bayreuth	Germany
5.	Mathieu Bajodek	CNRS, LAGEPP	France
6.	Tighana Wenge Basele	Bauhaus-Universität Weimar	Germany
7.	Nikolaos Bekiaris-Liberis	Technical University of Crete	Greece
8.	Oussama Bengoua	Université Grenoble Alpes	France
9.	Samir Boujijane	Center for Remote Sensing Applications	Morocco
10.	Abed Boulouz	Ibn Zohr University	Morocco
11.	Hamid Bounit	Ibnou Zohr University	Morocco
12.	Lucas Brivadis	CNRS, L2S	France
13.	Qiaoling Chen	University of Passau	Germany
14.	Yacine Chitour	Université Paris-Saclay	France
15.	Chiara Cicolani	University of Wuppertal	Germany
16.	Abdelhakim Dahmani	University of Wuppertal	Germany
17.	Sergey Dashkovskiy	University of Würzburg	Germany
18.	Jannik Daun	Bergische Universität Wuppertal	Germany
19.	Bouchra Elghazi	University of Wuppertal	Germany
20.	Boladji Facia	CNRS, L2S	France
21.	Anna Fischer	TU Ilmenau	Germany
22.	Emilia Fridman	Tel Aviv University	Israel
23.	Jochen Glück	University of Wuppertal	Germany

Nr.	Full name	Affiliation	Country
24.	Lars Grüne	Universität Bayreuth	Germany
25.	Martin Gugat	University of Erlangen-Nuremberg	Germany
26.	Khaldi Hamza	Oran 1 Ahmed Ben Bella university	Algeria
27.	Ivan Hasenohr	University of Klagenfurt	Austria
28.	Pascal Heymoss	University of Wuppertal	Germany
29.	Jukka-Pekka Humaloja	Technical University of Crete	Greece
30.	Gianluca Hütter	University of Würzburg	Germany
31.	Birgit Jacob	University of Wuppertal	Germany
32.	Aditi Jain	University of Bayreuth	Germany
33.	Mariem Jakhoukh	University of Wuppertal	Germany
34.	Slim Jmal	Grenoble INP	France
35.	Illia Karabash	Universität Bonn	Germany
36.	Rami Katz	Tel Aviv University	Israel
37.	Fatima Zahra Lahbiri	Fernuni Hagen	Germany
38.	Tayeb Larhmaid	ENSAM, Hassan II University	Morocco
39.	Martin Lazar	University of Dubrovnik	Croatia
40.	Jerome Loheac	CNRS / University of Lorraine	France
41.	Niclas Mamerow	University of Passau	Germany
42.	Volker Mehrmann	TU Berlin, Interdisciplinary Center for Modelling and Simulation	Germany
43.	Andrii Mironchenko	University of Bayreuth	Germany
44.	Kirsten Morris	University of Waterloo	Canada
45.	Lucas Moschen	Imperial College London	United Kingdom
46.	Richard Nutt	Karlsruher Institut für Technologie	Germany
47.	Benedikt Oppeneiger	Technische Universität Chemnitz	Germany
48.	Hamza Ouchoutta	Ibnou Zohr University	Morocco
49.	Violaine Piengeon	University of Namur	Belgium
50.	Cristina Pignotti	University of L'Aquila	Italy
51.	Kilian Pioch	Universität Bayreuth	Germany
52.	Anton Ponomarev	Karlsruhe Institute of Technology	Germany
53.	Till Preuster	Chemnitz University of Technology	Germany
54.	Philip Preußler	University of Twente	The Netherlands
55.	Timo Reis	TU Ilmenau	Germany
56.	Tobias Ritschel	Technical University of Denmark	Denmark
57.	Jarek Sarnowski	Kazimierz Wielki University in Bydgoszcz	Poland
58.	Manuel Schaller	Chemnitz University of Technology	Germany
59.	Anton Schiela	University of Bayreuth	Germany
60.	Jonas Schießl	University of Bayreuth	Germany
61.	Andreas Schroll	Julius-Maximilians-Universität Würzburg	Germany
62.	Sunny Singh	Delft University of Technology (IEPG)	The Netherlands
63.	Nathanael Skrepek	University of Twente	The Netherlands
64.	Mario Sperl	University of Bayreuth	Germany
65.	Hannes Wagener	University of Wuppertal	Germany
66.	Laura Weigl	University of Bayreuth	Germany
67.	Alexander Wierzba	University of Wuppertal	Germany
68.	Tobias Winterhager	TU Berlin	Germany
69.	Fabian Wirth	University of Passau	Germany
70.	Suttida Wongkaew	Chiang Mai University	Thailand

Practical Information

Updated information about accommodation, travel, registration, and the final programme is maintained on the workshop website.

Venue

University of Bayreuth, Campus Building NW II, Universitätsstraße 30, 95447 Bayreuth, Germany.

- Lecture Hall: H18
- Coffee Breaks: H20
- Coworking Space: S76

Wi-Fi

The secure Eduroam Wi-Fi network is available throughout the University of Bayreuth campus. The slower, free BayernWLAN Wi-Fi network is also available to guests throughout the campus.

Information for Speakers

The projector in the lecture hall has a display resolution of 1920x1200 (16:10 aspect ratio). The conference lecture rooms are equipped with HDMI connections. Speakers are encouraged to use their own laptops for their presentations and to bring suitable HDMI adapters. You can test the connection during the lunch break before your session.

There is a large blackboard in the lecture room. You are welcome to give a blackboard talk or to combine slides with a blackboard presentation.

Poster Session

The recommended poster size is A0, portrait orientation. The poster stands are designed for this size, but smaller posters can also be displayed. Poster presenters are responsible for printing their posters and bringing them to the workshop.

The poster stands are organized in triplets, see Fig. 1. Please hang your poster at the side stands, leaving the middle one empty if possible. This will reduce congestion and improve the experience. Please use both sides of the triplet. I.e., optimally there should be 4 posters per triplet.



Figure 1: Typical poster stand triplet.

Lunch

- Lunch will be served in the Mensa (university canteen). Food is available until 14:00 on Wednesday and Thursday and until 13:30 on Friday.

- The canteen offers three dining options (your voucher is valid for all three):
  a. “Hauptmensa” with a range of different main courses (including a vegetarian meal).
  b. “Frischmensa” with a greater emphasis on regional food (2–3 main courses with fixed side dishes). At least one of the meals is vegetarian or vegan.
  c. “salad bar” with fresh ingredients and 2–3 hot snacks that can be combined.
- You will receive three lunch vouchers, one for each conference day.
- Using a voucher:
  – Collect your lunch (main course + side dish + salad + dessert + drink).
  – At the checkout, please hand your voucher to the canteen staff.

Conference Dinner

The conference dinner will take place at Engin’s Ponte, Opernstraße 24-26, 95444 Bayreuth.

Travel to and within Bayreuth

By Air

The nearest airport is Nuremberg Airport (NUE), approximately 80 km from Bayreuth. The U2 underground line connects the airport directly with Nuremberg Central Station (Hauptbahnhof). From there, regional trains to Bayreuth Hauptbahnhof (Hbf) take approximately one hour.

For international and long-haul flights, Munich Airport (MUC) and Frankfurt Airport (FRA) are convenient alternatives, with onward train connections to Bayreuth.

By Train

Bayreuth is connected to the German rail network by regional trains. Nuremberg Hauptbahnhof is the main interchange for many connections, with direct regional services to Bayreuth taking approximately one hour. For schedules and tickets, please visit:

`https://www.bahn.de/`

Local Transportation in Bayreuth

Bayreuth has a convenient city bus network.

`https://bahnland-bayern.de/de/moby/efa/app/trip?lng=en&trip=multiModalitySelected%3Dpt`

The key transport points for conference participants are **Bayreuth Central Station (Bayreuth Hauptbahnhof, Hbf)**, the central bus hub **ZOH (Zentrale Omnibushaltestelle)**, and the **University of Bayreuth**.

From Hbf, bus 316 provides a direct connection to the university. From ZOH, the university is served by bus lines 304, 306, 310, and 326. For the conference venue, please use the stops “Uni-Verwaltung” or “Uni-Verwaltung / ÖBG”.

Hbf and ZOH are connected by city buses and are also within walking distance of each other. For current connections and departure times, please use the VGN journey planner or VGN app.

Parking

The car parks “Parkplatz P3 - BGI” (P3) and “Parkplatz P4 - NW 2” (P4) are closest to the Department of Mathematics in the “Naturwissenschaften II” (NW 2) building.

Sponsors

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Chair of Applied Mathematics

Travel support

The Collaborative Research Centre CRC 1701 “Port-Hamiltonian Systems” provided travel support for six researchers participating in the workshop.

CRC 1701 PORT-HAMILTONIAN SYSTEMS