Friedrich-Alexander-Universität
Research Center for
Mathematics of Data | MoD

Hosted by FAU MoD at Friedrich-Alexander-Universität Erlangen-Nürnberg, the **#MLPDES26 workshop** is the second edition of an international event that brings together researchers from Europe, UK and the United States to explore the growing connection between Machine Learning (ML) and Partial Differential Equations (PDEs) —two core fields in modern mathematics that are now developing a dynamic, mutually beneficial relationship.

Supported by the Chair for Dynamics, Control, Machine Learning and Numerics - Alexander von Humboldt Professorship, Politecnico di Bari and the Alexander von Humboldt Stiftung/Foundation, this event aims to establish a collaborative platform for participants from diverse backgrounds to network, sharing insights, and driving progress in these exciting fields.

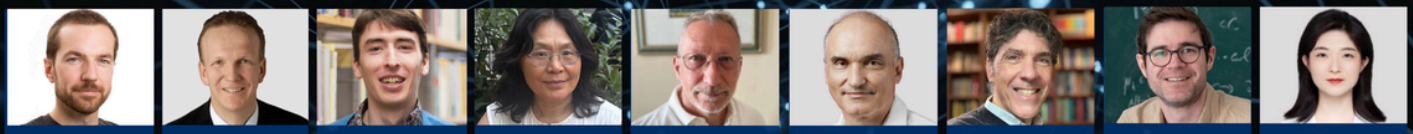
PoliTO	UAM | FAU	GMU	Unipi	Oxford	Unipi	EPFL	NTNU	Unipd
Riccardo Adami	Antonio Alvarez	Harbir Antil	Luigi Berselli	Maria Bruna	Giuseppe Buttazzo	Gonzalo Cao-Labora	Elena Celledoni	Annalisa Cesaroni

Machine Learning and PDEs

#MLPDES26 WORKSHOP

June 22 - 24, 2026

ERLANGEN - BAVARIA, GERMANY



Ulrik Skre Fjordholm	Ingenuin Gasser	Sam G. Krupa	Xue-Mei Li	Francesco Maddalena	Jean-Michel Morel	Lorenzo Pareschi	Emil Wiedemann	Yanzhi Wu
UIO	Uni-Hamburg	ENS-PSL	EPFL	Poliba	Lingnan	HW | Unife	FAU	FAU

WHEN

Mon.-Wed. **June 22 - 24, 2026**
09:30H - 17:00H

WHERE

On-site. FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg
Senatssaal (Senate Hall) im Kollegienhaus
Universitätsstraße 15, 91054 Erlangen - Bavaria, Germany

Online (live streaming): **fau.tv/clip/id/63196**

REGISTRATION

Free but mandatory
Registration form: **dcn.nat.fau.eu/registration-mlpdes26**

mod.fau.eu/mlpdes26

SCIENTIFIC COMMITTEE

- **Giuseppe Maria Coclite.** Politecnico di Bari
- **Enrique Zuazua.** FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg

ORGANIZING COMMITTEE

- **Darlis Bracho Tudares.** FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg
- **Nicola De Nitti.** Università di Pisa
- **Lorenzo Liverani.** FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg

AUDIENCE

This international workshop is open to: Public, Students, Postdocs, Professors, Faculty, Alumni and the scientific community all around the world

UNTERSTÜTZT VON / SUPPORTED BY
Alexander von HUMBOLDT STIFTUNG

Friedrich-Alexander-Universität
DYNAMICS, CONTROL, MACHINE LEARNING AND NUMERICS

Politecnico di Bari

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#MLPDES26 Schedule • Time table

	MON. JUNE 22, 2026	TUE. JUNE 23, 2026	WED. JUNE 24, 2026
09:20H 09:50H	Registration **Opening ceremony**	**Maria Bruna. Oxford** Microscopic interactions and macroscopic PDEs: Beyond the mean-field paradigm	**Emil Wiedemann. FAU** Beyond Incompatibility: Using Optimal Transport for Algorithmic Fairness
10:00H 10:30H	**Giuseppe Buttazzo. Unipi** Optimal data for elliptic PDEs	**Harbir Antil. GMU** Digital Twins and Beyond: A PDE-Constrained Optimization Perspective	**Sam G. Krupa. ENS-PSL** Are L^∞ solutions to hyperbolic systems of conservation laws unique?
10:40H	COFFEE / TEA BREAK		
11:10H 11:40H	**Elena Celledoni. NTNU** Structure preservation and Deep Learning for Learning Mechanical Systems from Data	**Ulrik Fjordholm. UIO** The zero-noise limit for hyperbolic conservation laws	**Yanzhi Wu. FAU** Data-Driven Control of Unknown Linear Systems: Two Disturbance Models
11:50H 12:20H	**Xue-Mei Li. EPFL** Rough PDEs, Long-Range Dependence, and Multi-Scale Dynamics	**Riccardo Adami. PoliTO** A mathematical model for the Einstein-Podolsky-Rosen phenomenon	**Luigi Berselli. Unipi** Womersley type flows for a non Newtonian fluid with variable exponent
12:30H	LUNCH BREAK		**Annalisa Cesaroni. Unipd** Analysis of commuting times in a linear city
14:00H 14:30H	**Ingenuin Gasser. Uni-Hamburg** Mathematical models in the context of renewable energies	**Lorenzo Pareschi. HW | Unife** Structure-Preserving Neural Surrogates for Uncertainty Quantification in Plasma Physics	**Closing ceremony**
14:40H 15:10H	**Gonzalo Cao-Labora. EPFL** Discovery of unstable singularities	**Francesco Maddalena. Poliba** Multiple Scales in a Nonlocal Evolution Equation of Continuum Mechanics	
15:20H 16:00H	**Jean-Michel Morel. Lingnan University.** On Interpolation Formulas Describing Neural Network Generalization	**Antonio Alvarez. UAM | FAU** Perceptrons and localization of attention's mean-field landscape	

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Program DAY 1 • Mon. June 22, 2026

09:20H		**Registration** **Opening ceremony**
10:00H 10:30H		**Giuseppe Buttazzo** **Unipi, University of Pisa** Optimal data for elliptic PDEs
10:40H		**COFFEE / TEA BREAK**
11:10H 11:40H		**Elena Celledoni** **NTNU, Norwegian University of Science and Technology** Structure preservation and Deep Learning for Learning Mechanical Systems from Data
11:50H 12:20H		**Xue-Mei Li** **EPFL, École Polytechnique Fédérale de Lausanne** Rough PDEs, Long-Range Dependence, and Multi-Scale Dynamics
12:30H		**LUNCH BREAK**
14:00H 14:30H		**Ingenuin Gasser** **Universität Hamburg** Mathematical models in the context of renewable energies
14:40H 15:10H		**Gonzalo Cao Labora** **EPFL, École Polytechnique Fédérale de Lausanne** Discovery of unstable singularities
15:20H 16:00H		**Jean-Michel Morel** **Lingnan University** On Interpolation Formulas Describing Neural Network Generalization

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28.05.2026

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Program DAY 2 • Tue. June 23, 2026

09:20H 09:50H		**Maria Bruna** **University of Oxford** Microscopic interactions and macroscopic PDEs: beyond the mean-field paradigm
10:00H 10:30H		**Harbir Antil** **GMU, George Mason University** Digital Twins and Beyond: A PDE-Constrained Optimization Perspective
10:40H		**COFFEE / TEA BREAK**
11:10H 11:40H		**Ulrik Skre Fjordholm** **University of Oslo** The zero-noise limit for hyperbolic conservation laws
11:50H 12:20H		**Riccardo Adami** **PoliTO, Politecnico di Torino** A mathematical model for the Einstein-Podolsky-Rosen phenomenon
12:30H		**LUNCH BREAK**
14:00H 14:30H		**Lorenzo Pareschi** **Heriot Watt University and Università degli studi di Ferrara** Structure-Preserving Neural Surrogates for Uncertainty Quantification in Plasma Physics
14:40H 15:10H		**Francesco Maddalena** **Poliba, Politecnico di Bari** Multiple Scales in a Nonlocal Evolution Equation of Continuum Mechanics
15:20H 16:00H		**Antonio Alvarez** **UAM, Autonomous University of Madrid and FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg** Perceptrons and localization of attention's mean-field landscape

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June 22 - 24, 2026

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GERMANY

Program DAY 3 • Wed. June 24, 2026

09:20H 09:50H		**Emil Wiedemann** **FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg** Beyond Incompatibility: Using Optimal Transport for Algorithmic Fairness
10:00H 10:30H		**Sam G. Krupa** **ENS Paris, École Normale Supérieure – PSL** Are L^∞ solutions to hyperbolic systems of conservation laws unique?
10:40H	**COFFEE / TEA BREAK**	
11:10H 11:40H		**Yanzhi Wu** **FAU DCN-AvH. Friedrich-Alexander-Universität Erlangen-Nürnberg** Data-Driven Control of Unknown Linear Systems: Two Disturbance Models
11:50H 12:20H		**Luigi Berselli** **Unipi, University of Pisa** Womersley type flows for a non Newtonian fluid with variable exponent
12:30H	**LUNCH BREAK**	
14:00H 14:30H		**Annalisa Cesaroni** **Unipd, Università degli Studi di Padova** Analysis of commuting times in a linear city
14:40H	**CLOSING CEREMONY**	

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