



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.



Machine Learning and PDEs

#MLPDES26 WORKSHOP

June 22 - 24, 2026

ERLANGEN - BAVARIA, GERMANY



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: dcm.nat.fau.eu/registration-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



mod.fau.eu/mlpdes26



UNTERSTÜTZT VON / SUPPORTED BY

Alexander von
HUMBOLDT
STIFTUNG



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



Politecnico
di Bari

#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	Katharina Schratz. Sorbonne Resonances as a Computational Tool
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		
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

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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
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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

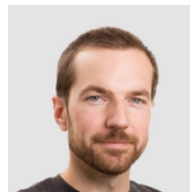
GMU, George Mason University

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

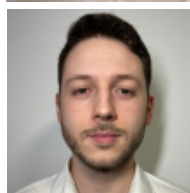


Francesco Maddalena

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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Giuseppe Maria Coclite. Poliba
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ORGANIZING COMMITTEE

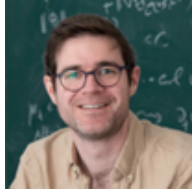
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Program DAY 3 • Fri. June 24, 2026

09:20H
09:50H**Emil Wiedemann****FAU, Friedrich-Alexander-Universität Erlangen-Nürnberg**
Beyond Incompatibility: Using Optimal Transport
for Algorithmic Fairness10:00H
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 BREAK11:10H
11:40H**Katharina Schratz****Sorbonne Université**
Resonances as a Computational Tool11:50H
12:20H**Luigi Berselli****Unipi, University of Pisa**
Womersley type flows for a non Newtonian fluid with variable
exponent

12:30H

LUNCH BREAK14:00H
14:30H**Annalisa Cesaroni****Unipd, Università degli Studi di Padova**
Analysis of commuting times in a linear city

14:40H

CLOSING CEREMONY**SCIENTIFIC COMMITTEE****Giuseppe Maria Coclite.** Poliba
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