// Institute for Sustainable and Digitized Railway Infrastructures

// *Seminar #4:*

Digital twins in various fields including railway infrastructures: state of the art, needs, synergies

Tuesday, October 28, 2025

Paris-Saclay University – CentraleSupélec – bâtiment Bouygues – théâtre Rousseau
9 rue Joliot-Curie, 91190 Gif-sur-Yvette, France
Registration (in-person or remotely): https://tinyurl.com/yb3hd35t

// 9:30am – Welcome coffee

10am **Prof. Véronique AUBIN** [CentraleSupélec | Université Paris-Saclay]
Deputy director of the Laboratory of Mechanics Paris-Saclay

Opening

10:15am **Prof. Karen WILLCOX** [University of Texas at Austin]
Director of the Oden Institute for Computational Engineering and Sciences
Associate Vice President for Research

Digital Twins: Research Gaps and Future Directions

11:15am **Prof. Gitta KUTYNIOK** [LMU Munich]
Bavarian AI Chair for Mathematical Foundations of Artificial Intelligence
Director of AI-HUB@LMU

Sustainable AI for Digital Twins: From Mathematical Foundations to Next Generation AI Computing

12pm **Prof. Ludovic CHAMOIN** [ENS Paris-Saclay | Université Paris-Saclay]
Laboratory of Mechanics Paris-Saclay (LMPS)

Real-time monitoring of complex engineering systems using data assimilation and hybrid twinning

// 12:30pm – Lunch break

2pm **Laurent GARDES** [SNCF DTIPG]
Innovation Technology Leader AI

TBC

2:30pm **Dr. Sin Sin HSU** [Network Rail]
Regional Engineer

State of the art railway inspection technology using AI

3pm **Dr. Fanny LEHMANN** [ETH Zurich]
ETH AI Center & Seminar for Applied Mathematics

Foundation models of the Earth system: generalizability and long-term stability

3:30pm **Prof. Farid BENBOUDJEMA** [ENS Paris-Saclay | Université Paris-Saclay]
Laboratory of Mechanics Paris-Saclay (LMPS)
Coordinator of the ANR HEAT COFFEE chair

Experimental assessment and numerical simulation of concrete foundations of high voltage electrical transmission lines

4pm **Prof. Stefania FRESCA** [University of Washington, Seattle]
Department of Mechanical Engineering

Complexity reduction for parameterized PDEs

4 :30pm **Pierre-Étienne GAUTIER** [CentraleSupélec | Université Paris-Saclay]
Laboratory of Mechanics Paris-Saclay (LMPS)

Conclusion

// 5pm – Cocktail

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