



FJOH

Summer school

Nuclear Systems in the Age of AI: Data, Modelling and Experiments

August 26 to September 4, 2026
Aix-en-Provence, France

LECTURES

- **Promise and challenges of data-driven modelling - 1h** E. Décossin (EDF)

- **Effective AI integration into R&D: requirements and implications - 6h**
 - The energy vs. information nexus V. Mazauric (Schneider Electric)
 - Machine Learning and Deep Learning: from fundamentals to scientific applications G. Daniel (CEA)

- **Reactor neutronics and nuclear physics - 6h**
 - Nuclear data: gap filling, data curation, automation... D. Rochman (PSI)
 - Core optimisation using Machine Learning, validation data when there is no experimental data K. Zhang (KIT)

- **Thermal hydraulics - 6h**
 - High quality experimental data in challenging measuring environments J. Pacio (SCK CEN)
 - Machine Learning vs. traditional methods for CHF predictions: accuracy, uncertainty, and transferability M. Lee (KAERI)
 - AI architectures for computational fluid dynamics A. Lintermann (FZJ)

- **Fuels and materials - 6h**
 - Changes of paradigm in nuclear materials science: how modern digital technologies applied to materials support nuclear energy competitiveness L. Malerba (CIEMAT)
 - Machine Learning-assisted multiscale modeling of materials, application to nuclear fuels J. Tranchida (CEA)
 - Surrogate-aided Bayesian calibration for fuel performance modelling: limitations from model inadequacy and opportunities for surrogate applications beyond calibration G. Robertson (Westinghouse Electric)

- **Integration, safety, operational data - 4h**
 - Use of Machine Learning techniques in power plant safety studies A. Diab (Ain Shams Univ.)
 - Safety, confidence in metamodels and data-driven models J. Baccou (ASNR)

- SEMINAR - 2h**
AI and humans W. Mackay (INRIA)

GROUP ACTIVITIES ON SELECTED SCIENTIFIC TOPICS - 6h

TECHNICAL VISITS

Application Deadline
15.05.2026

Fees : 2400€
Reduction fees: 1200€



For any information, please contact the FJOH school secretariat at fjoh@cea.fr or visit our web site www.fjohss.eu