

Programme

08:30	Registration and Coffee
09:00	In-person Welcome on behalf of the IOP Applied Mechanics Group and structure of the day Alice Cicirello , University of Cambridge
09:10	In-person A brief introduction to Physics Enhancing Machine Learning in solid mechanics and materials Alice Cicirello , University of Cambridge
	Lightning Talks – Session I
09:30	Online Separable Physics-Informed Neural Networks for inverse quantification of material properties Damien Bonnet-Eymard , KU Leuven
09:37	In-person Discovering Partially Known Ordinary Differential Equations: a Case Study on the Cellulose Degradation Kateryna Morozovska , KTH Royal Institute of Technology
09:44	In-person A robust multi-level data-driven Bayesian approach for stochastic model identification of complex nonlinear systems Michael McGurk , University of Strathclyde
09:51	In-person A study of maximum spreading ratio at zero impact velocity of mixed oils with Bayesian Optimisation Qianrong Liu , University of Birmingham
09:58	In-person Scour Depth Monitoring of Pile Foundations with a Data-Driven Model Updating Framework Andreas Ioakim , University of Nottingham
10:05	In-person Physics-informed data-driven modelling of the precipitation hardening of 6XXX series Aluminium alloys Amir Alizadeh , Brunel University London
10:12	In-person Data Generation and Physics-Informed Strategies for Machine-Learned Force Fields in Molecular Dynamics Saffron Luxford , University of Nottingham
10:19	In-person

	Machine Learning and DFT Integration: Development of Quantum Chemically Accurate Density Functionals with the QM9 Data Set Ali Kemal Havare , Toros University
10:26	In-person Physics Enhanced Capsule Robot: Pathway to Advancing Early Disease Diagnosis Kenneth Afebu , University of Exeter
10:32	Coffee Break
	Lightning Talks – Session II
11:00	Online A benchmark for Physics-Enhanced Machine Learning research in SHM Francesca Marafini , University of Florence
11:07	Online A Functional Ontology of Physics-Enhanced Machine Learning Marcus Haywood-Alexander , ETH Zurich
11:14	Online Disentanglement by Backpropagation with Physics-Informed Variational Autoencoder Ioannis Koune , Technical University of Delft
11:21	In-person Change-point Gaussian process kernels Matthew Jones , University of Sheffield
11:28	In-person Modelling a Nonlinear Oscillator from Experimental Data using Lagrangian Neural Networks Alan Xavier , Imperial College London
11:35	In-person Physics-Informed Holomorphic Neural Networks (PIHNNs) with applications to linear elasticity Matteo Calafà , Aarhus University
11:42	Online Pre-trained physics-informed deep learning-based reduced order models for nonlinear parametrized PDEs Andrea Manzoni , Politecnico Di Milano
11:49	Online Physics-Informed Machine Learning for the Bearing Monitoring of a long Highway Viaduct with Displacement Transducers Enrico Cienci , Politecnico di Torino
11:56	In-person Virtual sensing and impact force estimation on an operating ferry quay via Gaussian process latent force model Luigi Sibille , NTNU

12:03	In-person Efficient Wind Farm Monitoring with Multi-Task Learning Simon Brealy , University of Sheffield
12:07	Lunch
13:00	In-person Keynote I: Hybrid surrogate modeling for multiscale simulations with Physically Recurrent Neural Networks Iuri Rocha , TU Delft
	Session: Real-world applications of PEML
13:45	In-person Machine learning in action: case studies across nuclear applications Caroline Shenton-Taylor , University of Surrey
14:05	Online The Language of Hyperelastic Materials Georgios Kissas , ETHZ
14:25	Online Gaussian Processes for input-modeling in virtual sensing of wind turbine blades Silvia Vettori , Siemens
14:45	Tea break
15:15	Online Keynote II: On the use of Graph and Point networks in scientific applications (ONLINE) Marta D'Elia , ICME, Stanford
16:00	Interactive session about challenges, opportunities, future trends (For in-person attendees only)
17:00	Drinks and Pizza
18:30	Depart