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Scientific Machine Learning

Organisers:

Prof. Timon Rabczuk (timon.rabczuk@uni-weimar.de, Bauhaus-Universität Weimar)

Dr. Cosmin Anitescu (cosmin.anitescu@uni-weimar.de, Bauhaus-Universität Weimar)

Short description: Scientific Machine Learning (SciML) is an emerging field at the intersection of scientific computing and machine learning. The goal of SciML is to integrate physics-based models and simulations into machine learning algorithms to create more accurate and interpretable predictive models. This approach combines the strengths of physics-based models, which have a strong theoretical foundation and can capture complex physical phenomena, with the data-driven capabilities of machine learning algorithms, which can learn patterns and relationships from large datasets. This session will explore the applications of SciML to engineering problems, including neural operator approximations and surrogate models, to accelerate the process of solving partial differential equations and the modeling of complex dynamic systems.