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Research Frontiers Workshop on Scientific Machine Learning:

Navigating the Bermuda Triangle of **Knowledge Infusion, Explainability, and Scientific Discovery**

Oct 7th to 10th, 2025, at the University of Stuttgart, Germany

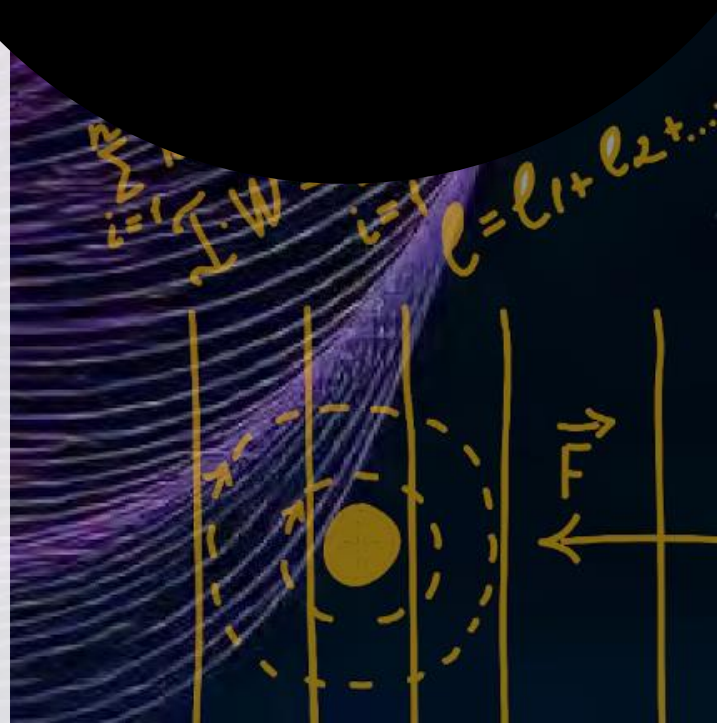
In this interactive workshop, we aim to extract and structure the often-hidden fundamental concepts that are behind the design or usage of methods of machine learning (ML). The workshop shall foster reflection and spark debate on how we can use ML in science, critically questioning which developments will likely live up to their expectations, and which ones bring the most potential for new, interdisciplinary ideas. It is essential to regard these developments from different perspectives.

We aim to bring together different fields ranging from *physics* to *engineering* and *philosophy of science and AI*. Internationally renowned experts will give keynote lectures on three pillars of ML for science: **knowledge infusion**, **explainability**, and **knowledge extraction**. We will further discuss these topics in plenary sessions and break-out groups to carve out “blue skies” opportunities in an interdisciplinary context that wouldn’t have emerged in isolated fields. We look forward to welcoming a diverse mix of leading experts and eager-to-share-and-learn participants to Stuttgart!

More info & application until Sep 15th: Workshop website

Funded by

SimTech Cluster of Excellence
DFG Deutsche Forschungsgemeinschaft
machine learning new perspectives for science
HEIDELBERGER AKADEMIE DER WISSENSCHAFTEN
Akademie der Wissenschaften des Landes Baden-Württemberg



Can AI

... offer **understanding**,
... generate serendipitous scientific **insight**, and
... reach **interpretability** rooted in domain knowledge

?