



PhD/Postdoc - project

Machine Learning for Kinetic Plasmas Simulations

Project Description

This project focuses on developing data-driven and mathematical techniques to construct compact and efficient models of complex plasma systems. The primary objective is to overcome the "*curse of dimensionality*" by developing accurate low-dimensional representations of high-dimensional flow maps, leveraging their inherent compositional (semi-group) structure. The research will explore hybrid methodologies combining Neural Implicit Representations and Low-Rank Approximations.

Keywords: *Model Order Reduction, Neural Implicit Flow Maps, Low-Rank Approximation, Scientific Machine Learning, Plasma Physics*

Candidate Profile

Ideally background in **applied mathematics, data science or computational physics**.

Required:

- Knowledge in machine learning and/or model order reduction
- Programming skills in C++ and PyTorch

Advantageous:

- Familiarity with partial differential equations

Contact

For interested candidates, please contact one of the project members:

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