Lawrence Livermore National Laboratory

Machine Learning-Driven Modeling in Hydrodynamics and Plasma Physics

The 221204 National Ignition Facility shot [1] marked one of the most important milestones in the history of science. A longstanding goal of net-positive thermonuclear ignition has been achieved for the first time, thus paving the road to a clean energy source for the humankind. New generation predictive tools will be needed to improve the predictability of nowadays high energy density physics codes allowing for physics beyond diffusion transport. It is becoming clear that machine learning based modeling will provide a remedy to high fidelity, yet computationally efficient simulations. Opening for Ph.D. projects.

[1] H. Abu-Shawareb *et al.* (Indirect Drive ICF Collaboration), Lawson Criterion for Ignition Exceeded in an Inertial Fusion Experiment, Phys. Rev. Lett. 129, 075001 (2022).

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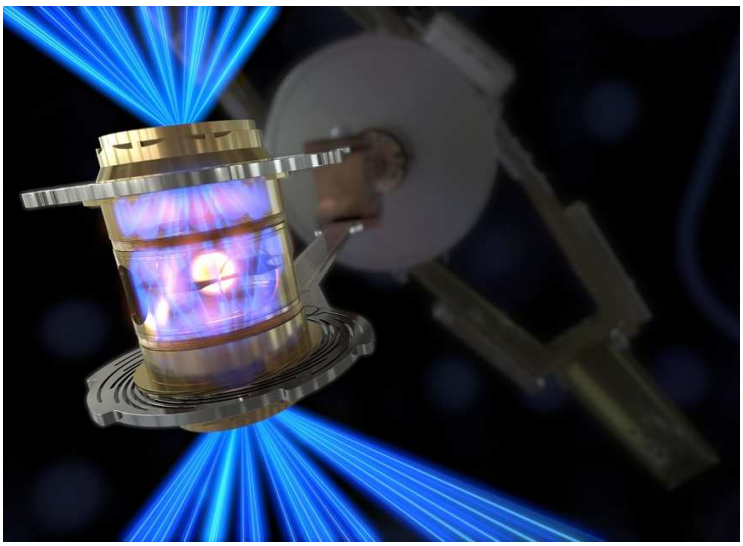

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