

# Magnetic Control of Tokamak Plasmas through Deep Reinforcement Learning

*Friday, 1 December 2023 09:15 (35 minutes)*

Reinforcement learning (RL) is a promising technology for the future of fusion power. A key challenge is to stabilize and regulate the plasma position and shape via magnetic fields generated by a set of control coils. This talk discusses our efforts to generate magnetic controllers using deep reinforcement learning. We train controllers on a Grad-Schafranov based simulator and then deploy the learned controller on experiments on the Tokamak à Configuration Variable (TCV). We show successful stabilization of a diverse set of plasma configurations, and discuss strategies to accelerate training time and improved performance.

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