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Controlling fusion plasmas with deep reinforcement learning

Wednesday, March 6, 2024 9:00 AM (20 minutes)

The tokamak is one of the most promising concepts for confining fusion plasma. Controlling the tokamak actuators to stably maintain plasma in the desired state is an essential technology for sustainable energy production using nuclear fusion. Recently, technologies controlling fusion plasma in the tokamak using deep reinforcement learning (RL) have been emerging. In this presentation, we will present research results on optimizing the actuation trajectory, controlling the plasma state, and maintaining the plasma stability in tokamak devices using deep RL.

Primary Keyword

AI-based controls

Secondary Keyword

ML-based optimization

Tertiary Keyword

reinforcement learning

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