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Title: A practical introduction to the H-mode pedestal: ELM and ELM-free regimes

Speaker: Andrew Nelson, PhD candidate

When: 2020-11-05 17:00:00

Abstract: Future fusion reactors will likely be run in a high-confinement mode called H-mode in order to reach the highest plasma temperatures and densities possible. H-mode is characterized primarily by a steep gradient region near the plasma edge called the H-mode pedestal. While the pedestal helps raise fusion parameters in the core, it is also subject to intense instabilities called Edge Localized Modes (ELMs), which will be intolerable in a reactor setting. In this talk, we will cover the basics of why the H-mode pedestal forms and how it interacts with the plasma. Fundamental theoretical and experimental understandings of ELMs will be discussed, as well as advanced options to operate H-mode plasmas in regimes without ELMs, thereby attaining the benefits of H-mode while avoiding the potentially disastrous possibility of melting the reactor wall.

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