



**FUSION** FuseNet

## How to make a plasma **BEHAVE**

by controlling energetic particle driven instabilities

Monday, December 14<sup>th</sup>  
16:00 Prague

Zoom in **LIVE** at  
**fusion.yt/ae**

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**Title:** How to make a plasma BEHAVE

**Speaker:** Yashika Ghai

**When:** 2020-12-14 16:00:00

**Abstract:** The next big step in fusion research is to create a steady-state hot plasma having temperature an order of magnitude greater than the core of sun. One way to heat plasma is by injecting a beam of high-energy neutral particles in the magnetically confined fusion device. As fusion reactions start, the energetic alpha particles are created as a byproduct that help keep the plasma hot for long. However, these energetic particles may also interact with various wave modes in plasma, exchange energy with them and drive them unstable. The instabilities may lead to high heat fluxes of fast ions on the walls of vacuum chamber, causing inefficient plasma heating as well as damage to the reactor walls. This talk will be based on explaining the physics of plasma instabilities in fusion devices that arise due to resonant interactions between energetic particles and plasma Alfvén waves. Theoretical models for studying energetic particle driven instabilities and ways of mitigating them would be discussed.

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