

High-beta MHD EP Physics Group

Group Leaders

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This group will focus topics on MagnetoHydrodynamics (MHD) and Energetic Particle (EP) to achieve the high-beta value of the deuterium experiments. In particular, (i) the extension of the high-beta plasma operation regime, (ii) studies of MHD stability to limit the high-beta plasma regime and the active control of those stabilities, and (iii) studies of EP physics to extend the high-beta plasma regime and the stability driven by EPs. Topics on MHD and EP to realize the high-beta plasma operation strongly relate to the transport and other physics. Thus, we will cooperate with other topical groups to do the experiment more efficiently.

Main topics are followings:

1. Extension of the high-beta plasma operation regime in the deuterium plasma.
2. Production and sustainment of the high plasma stored energy.
3. Spontaneous transition phenomena to extend the achieved beta.
4. Identification and control of low- n MHD stabilities in the high-beta plasma.
5. Explorer of the 3D physics related on the 3D magnetic topology.
6. Energetic particle confinements and demonstrations of the alpha particle confinement in the deuterium plasma.
7. Identification of the onset on EP driven instabilities and the active control of those instabilities.
8. Energetic particle losses induced by the magnetic island and the topological change of the magnetic field.

Contact for more information

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