

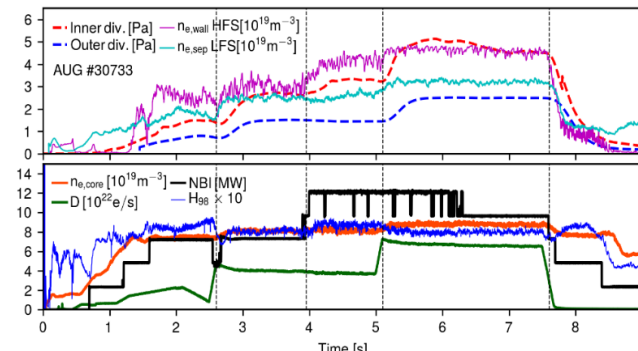
IST contributions to the ASDEX Upgrade edge and divertor physics using microwave reflectometry



The experimental results obtained demonstrate that the IST reflectometry systems on ASDEX Upgrade provide a valuable contribution to a better understanding of important physics topics such as:

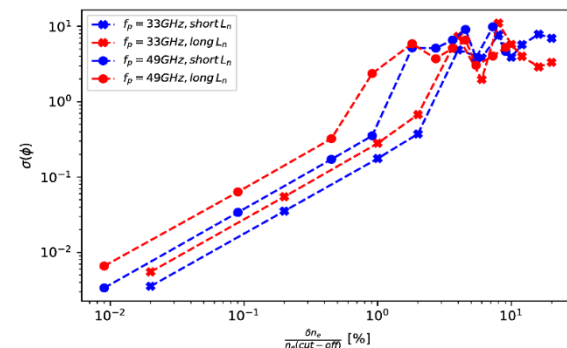
➤ LINK BETWEEN DIVERTOR AND LFS/HFS MIDPLANE CONDITIONS

Existence of a relationship between plasma confinement, the shift in the midplane LFS density profile and the presence of a HFS density front confirmed with respect to changes in seeding and fueling but not with respect to variations in the heating power.



➤ SYNTHETIC REFLECTOMETRY DIAGNOSTIC

Using full-wave synthetic reflectometry diagnostic simulations, a linear relation between the phase and the turbulence level is observed only up to $\delta n_e/n_e \approx 2-4\%$ followed by non-linear behavior at higher turbulence levels stressing the importance of numerical simulations to properly characterize the diagnostic response.



➤ EDGE INSTABILITIES IN H-MODE

Edge instabilities with a complex time evolution after the L-I-H transition have been observed. Their type and behavior is different for the low and high density branches of the L-H power threshold and they may play an important role in the H-mode pedestal structure, stability and confinement.

