A nonlinear 2-fluid study of the effect of pellet injection on ELM dynamics

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by

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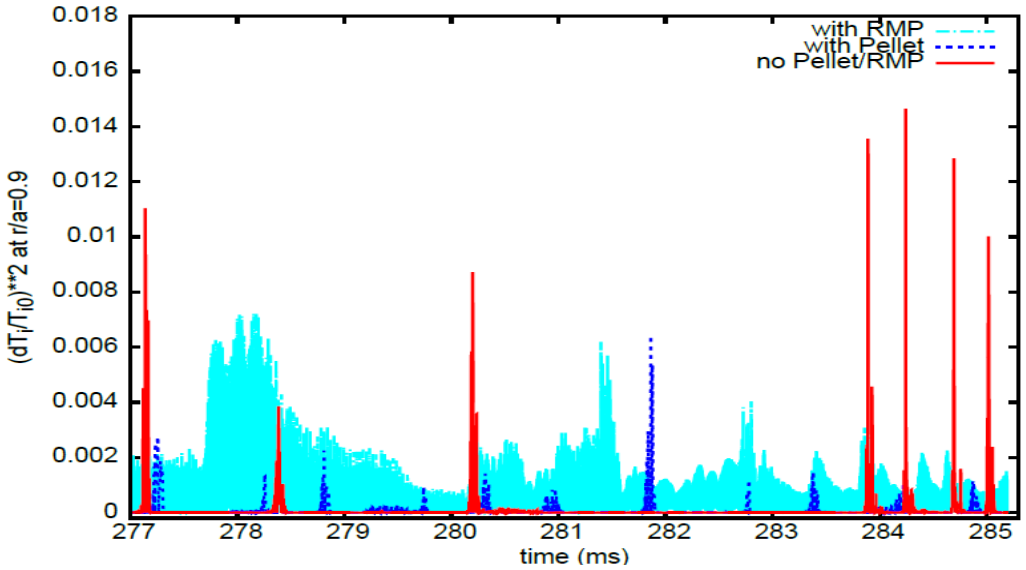

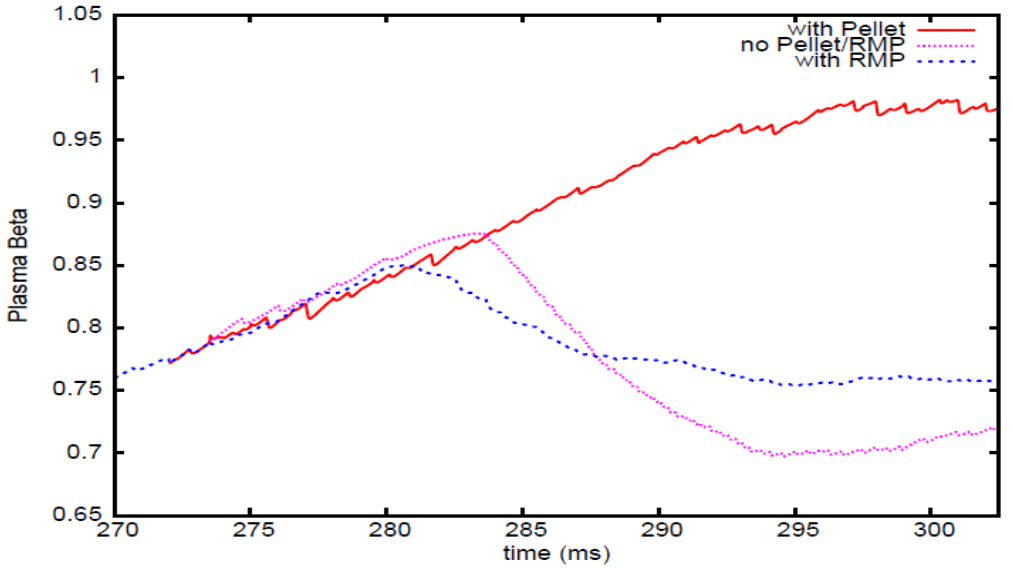

- The edge density is raised to twice the normal edge density with a duty cycle (on time:off time) of 1:2.
- The ELMs are generated on an average at a faster rate and with reduced amplitudes.
- These changes lead to significant improvements in the plasma beta, even better than RMPs, indicative of an improvement in the energy confinement.
- Pellets induce changes in the global plasma density and electron/ion temperature profiles and modifications in the pedestal profile and location. These are sensitive to the pellet size.
- The strong density rise at the edge by the pellets may leads to an inverse cascade to mid frequency ranges while changes in power spectra in presence of RMPs may be due to modulational instabilities induced by high-m field produced by RMP coils