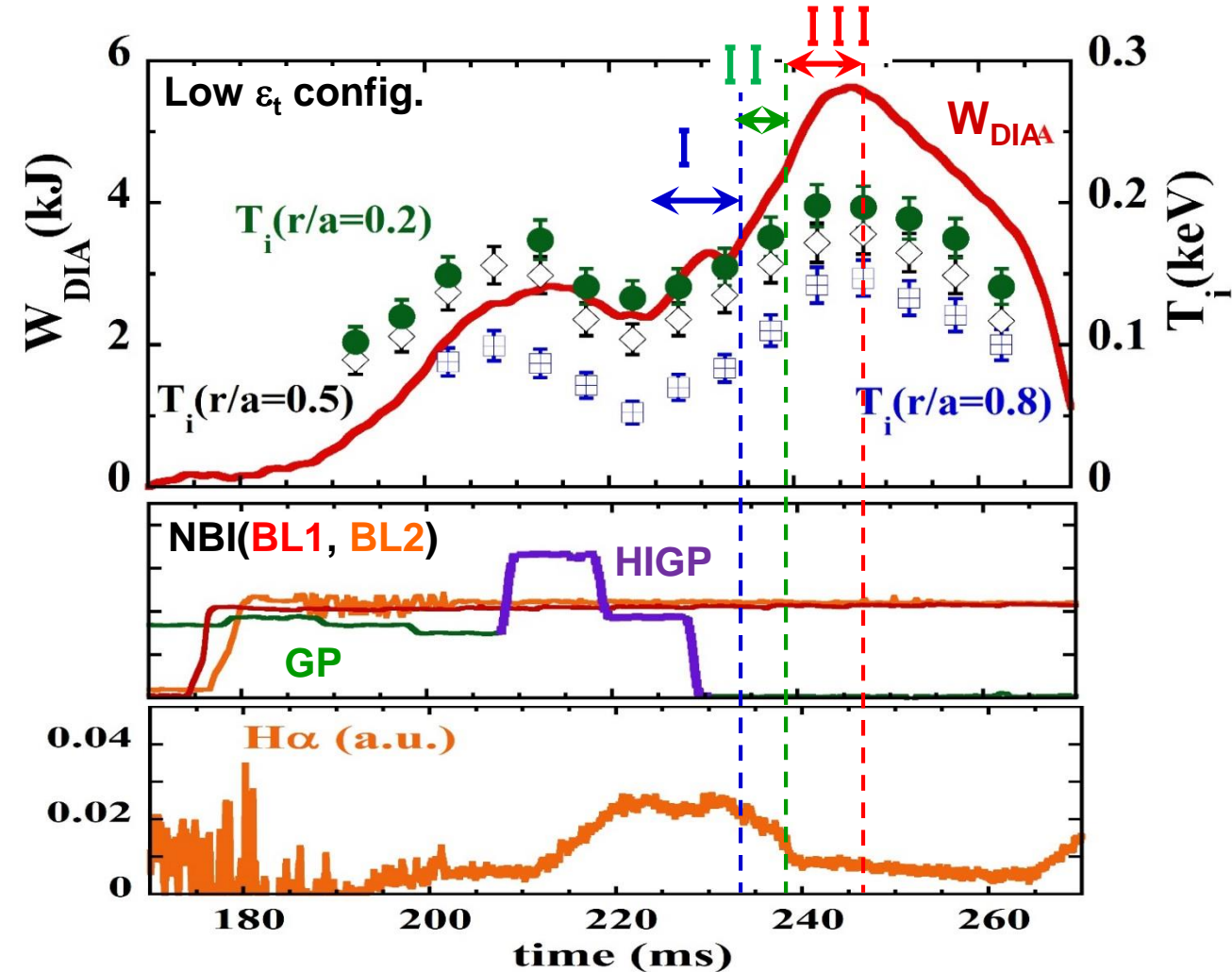


High density NBI plasma operation using HIGP in Heliotron J

#50131, Low ϵ_t config. B=1.3T

Heliotron J

- Short-pulse (10~20ms) & strong gas fueling (HIGP) in NBI plasma ($P_{NB}=1.3\text{MW}$) in the low-toroidicity (ϵ_t) config.
 - A high n_e state in the whole region with its steep gradient in the peripheral region is realized by HIGP.
- A carefully controlled HIGP scenario realized high density ($\sim 10^{20}\text{m}^{-3}$) NBI plasmas with T_{e0} and $T_{i0} \approx 0.2\text{-}0.3\text{ keV}$.
 - Increase in W_{DIA} ($\langle \beta \rangle_{DIA} \sim 0.8\%$ at 1.3T)
 - Decrease in $I_{H\alpha/D\alpha}$ (far from GP)
 - Interesting temporal change in the n_e -fluctuations (from BES) in the peripheral region.



➔ Transition to an improved confinement mode in a high density regime.

- The characteristic behavior of fluctuations might be closely related to the detailed trigger physics.

