High density NBI plasma operation using HIGP in Heliotron J

Heliotron J

- **Short-pulse (10~20ms) & strong gas fueling (HIGP) in NBI plasma (P_{NB}=1.3MW) 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 (~10^{20}m^{-3}) NBI plasmas with T_{e0} and T_{i0} ≈ 0.2-0.3 keV.**
  - *Increase in W_{DIA} ($<\beta>_{DIA}$~0.8% at 1.3T)*
  - *Decrease in $I_{H\alpha/D\alpha}$ (far from GP)*
  - *Interesting tempolal 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.*