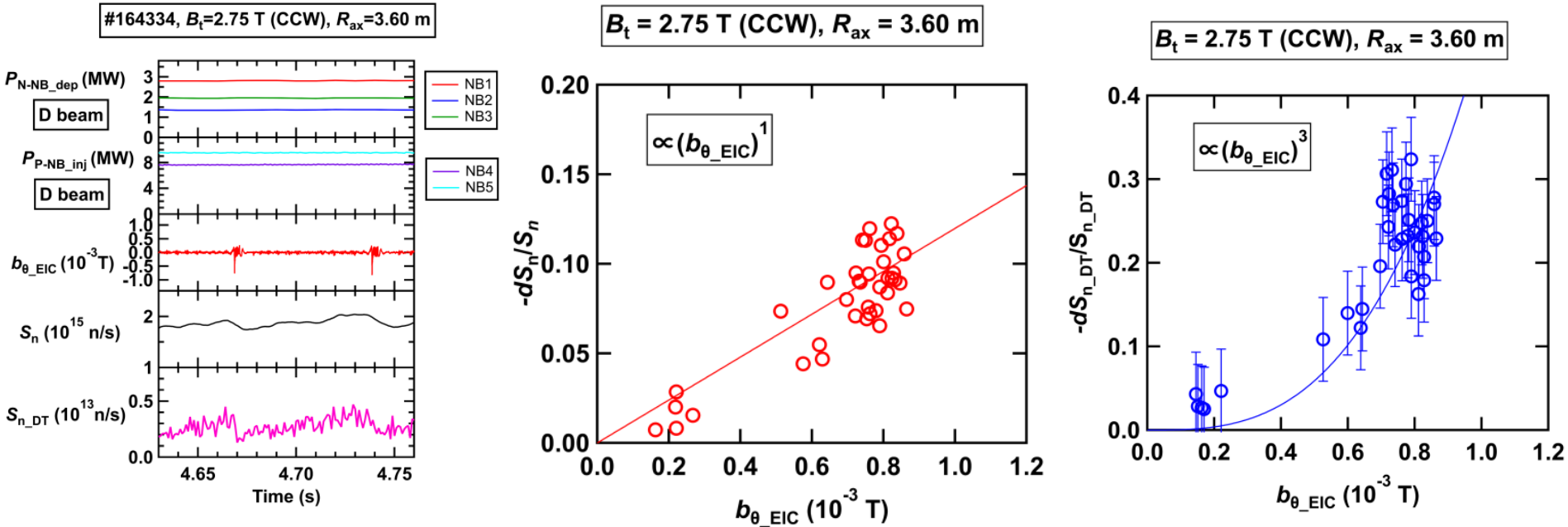


A Comprehensive Study of Energetic Particle Transport due to Energetic Particle Driven MHD Instabilities in LHD Deuterium Plasmas



- Beam ion and DD fusion born triton transport due to energetic-particle-driven MHD instabilities (EIC) is simultaneously studied in the Large Helical Device (LHD).
- Drop of total neutron emission rate (S_n) by EIC shows enhanced beam ion transport due to EIC.
 - Experiments in full D and H/D beam conditions shows that EIC induces up to 8% of passing transit beam ion losses and up to 60% of helically-trapped beam ion losses.
- Drop of secondary DT neutron emission rate (S_{n_DT}) increases substantially with the EIC amplitude to the third power and reaches $\sim 30\%$.
 - 1 MeV tritons are largely transported because the tritons are barely confined in LHD.