# ELM Suppression by Real-Time Boron Powder Injection in W Divertor in EAST

Diallo et al. IAEA-CN-1167

PPPL PRINCETON PLASMA PHYSICS LABORATORY

PRINCETON UNIVERSITY

ASIPP

JOHNS HOPKINS UNIVERSITY

- **ELM suppression with B powder injection**
  - Alter edge stability toward ELM-stable or small ELM regimes
  - Observed over a wide range of operation conditions
  - Suppression occurs when a threshold in B injection rate is crossed
  - Onset and saturation of mode - mode akin to GAM
    - Multiple harmonics ~ 2-5 kHz fundamental
    - Localized near separatrix and drives particle transport
- **Initial modeling of the boron powder induced of edge mode using neoclassical XGCa**
  - Observed frequencies in the pedestal are consistent with GAM
  - Continuous injection of powder can lead to multiple harmonics modes as observed ion experiments
  - While the n=1 mode can be excited using continuous powder injection, coupling to n=0 is unclear
- **Future work: extension of simulation coupling boron ablation and turbulence in XGC**