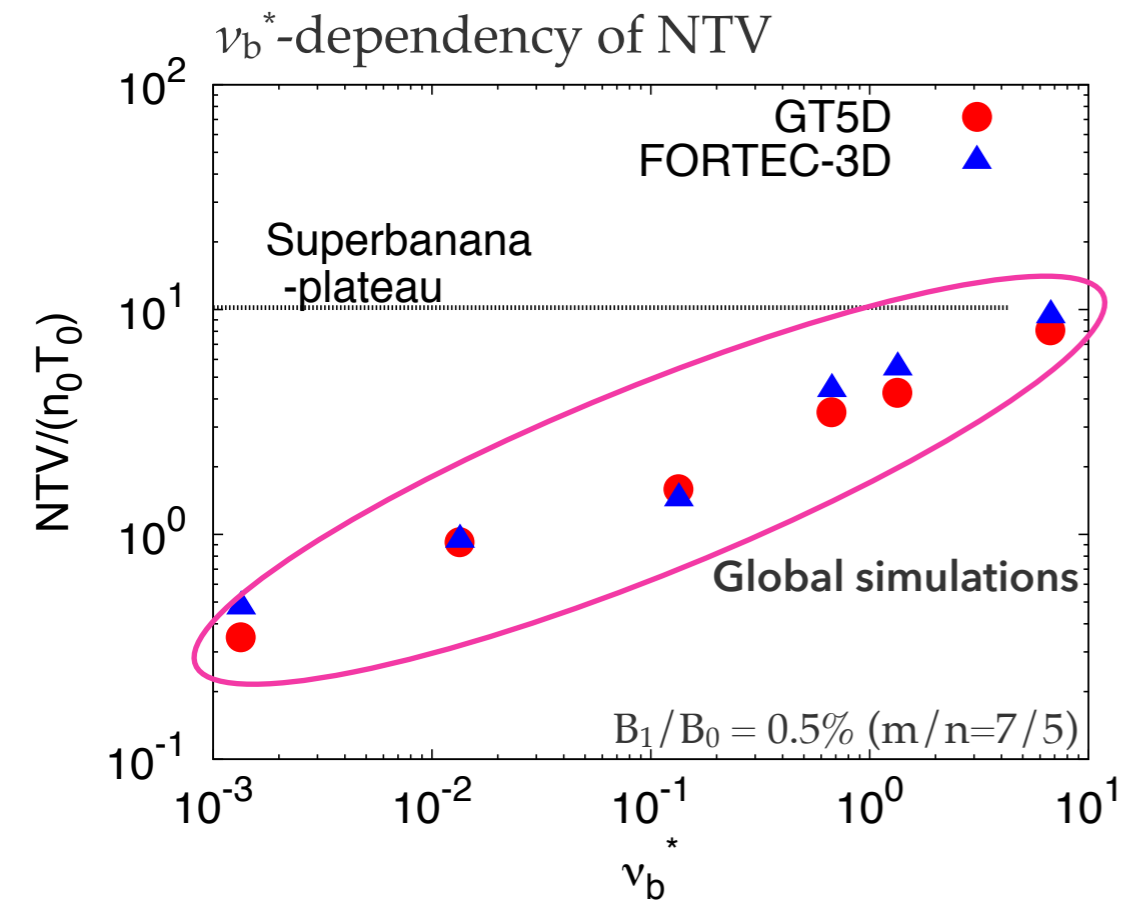


# Global kinetic effect on the collisionality dependence of the neoclassical toroidal viscosity in the superbanana-plateau regime



- Neoclassical toroidal viscosity (NTV) plays a key role in predicting the rotation in ITER.
- Two global kinetic simulations show **NTV has different  $\nu_b^*$ -dependency from the standard Superbanana-Plateau (SBP) theory.**

- Key mechanisms for the NTV are;
  - The resonance condition of SBP theory is modified by the magnetic shear effect.
  - Resonance occurs for the barely-trapped particles.
  - Large banana width of barely-trapped particles ( $\Delta_b = 0.2a_0$ ) significantly degrades the resonance.

**- Global kinetic simulations are essential for experimentally relevant NTV predictions.**