

The impact of the hydrogen species on the HHFW performance with possible new NSTX-U scenarios by N. Bertelli (PPPL) et al.

- The main goal of the NSTX-Upgrade (NSTX-U) is to operate at toroidal magnetic field at magnetic axis $B_T=1T$.
- With $B=1 T$ and $f=30MHz$, the 2nd harmonic of hydrogen (H) is located in the core plasma.
- This condition could open up new HHFW scenarios, which in turn can be relevant for the initial ITER ICRH experiments.
- A localized H absorption around the 2nd cyclotron H harmonic is observed by full wave code AORSA
- For low toroidal wave number and up to 10% H concentration, 30% and 60% of the total RF power can be absorbed by H population with and without NBI, respectively.
- Localized H absorption could change Ti locally and/or further increase electron damping via collisions

