

Abstract Submitted  
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**Effects of the H species in the HHFW performance in NSTX/NSTX-U plasmas**<sup>1</sup> N. BERTELLI, PPPL, E.F. JAEGER, XCEL, R.W. HARVEY, CompX, J.C. HOSEA, E.-H. KIM, R.J. PERKINS, G. TAYLOR, E.J. VALEO, PPPL — One of the goal of NSTX-U is to operate at full field ( $B = 1$  T). For this magnetic field, the first and second harmonics of hydrogen (H) are located at the high-field side and in the core plasma, respectively. In principle, part of the high-harmonic fast-wave (HHFW) injected power can be absorbed by the H population reducing the electron and/or the fast-ion heating. For this reason, full wave simulations results of NSTX-U scenarios with different H concentrations for wave frequencies of 30 and 60 MHz will be presented and discussed. Plasma scenarios with and without neutral beam injection (NBI) will be considered. Furthermore, the balance between the beam ion and electron power absorption will be analyzed comparing both NSTX and NSTX-U plasmas.

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