

Abstract Submitted  
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**Coupled Core-Edge Simulation for Particle and Energy Transport**<sup>1</sup> XIN ZHANG, Princeton University, FRANCESCA POLI, Princeton Plasma Physics Laboratory — The dynamic interplay between the core and edge plasma has important consequences in the confinement and heating of fusion plasma. Fast particles produced by Neutral Beam Injection (NBI) have drift orbits that extend into the Scrape-Off-Layer (SOL). The confinement of these fast particles will therefore be determined by both the core and the SOL plasma. Similarly, the coupling of radio-frequency waves in the range of Ion Cyclotron and Lower Hybrid is sensitive to the density in front of the antenna and these waves may suffer significant power loss before reaching the plasma core. Here we aim to develop a self-consistent, time-dependent simulation of coupled core and edge transport, to allow for better understanding of these phenomena and to facilitate future experimental design. The simulations will be performed using NSTX/NSTX-U plasma profiles and the core transport solver TRANSP coupled with the multi-fluid edge transport code UEDGE.

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