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Full Wave Modeling of Lower Hybrid current Drive with non-Maxwellian Distributions[1] C.K. PHILLIPS, H. OKUDA, H. QIN, J.R. WILSON, PPPL, P.T. BONOLI, J.C. WRIGHT, PSFC-MIT, M. BRAMBILLA, IPP-Garching
— In lower hybrid current drive (LHCD) experiments, it is well known that the resulting current drive is determined by absorption on an electron distribution that itself has been significantly distorted by resonant interactions with the lower hybrid waves. Furthermore, previous theoretical studies with combined ray tracing and Fokker-Planck codes have indicated that energetic alpha particles in burning plasma devices such as ITER may parasitically absorb lower hybrid waves. The effects of these distributions must be included to accurately simulate LHCD scenarios in devices such as C-Mod and ITER. Recently, the full wave lower hybrid code, TORLH, has been used to simulate LHCD scenarios in plasma with cold ions and hot, thermal electrons. Modifications to TORLH to include non-Maxwellian electrons or ions will be described in this poster. Initial simulations that compare LHCD scenarios in plasmas with thermal and non-thermal electrons will be presented.

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