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Two temperature effects in the HITS I experiment¹ ALAN KAPTANOGLU, TOM BENEDETT, CHRIS HANSEN, KYLE MORGAN, THOMAS JARBOE, University of Washington, HIT-SI3 TEAM — We investigate differences between our single temperature and our new two-temperature (ion-electron) extended magnetohydrodynamics (eMHD) simulations of the HITS I device at the University of Washington, using two distinct MHD codes, PSI-Tet and NIMROD. We focus on a number of key issues: illustrating greater agreement with experiment for a number of different measurements than the single temperature code, showing that the approximate linear scaling of beta and current gain with injector frequency persist with two-temperature effects, and investigating ion and electron heat flux to the flux conserver walls. Lastly, density, temperature, and particle diffusion scans are done in PSI-TET in order to better understand the parameter space and indicate possibilities for future work.

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