Abstract Submitted
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Diagnosis and Modeling of the Lower Hybrid Wave Injection on MST[1] DAVID BURKE, JOHN GOETZ, MICHAEL KAUFMAN, ABDULGADER ALMAGRI, JAY ANDERSON, STEWART PRAGER, University of Wisconsin Madison, JOHAN CARLSSON, Tech-X Corperation, TECH-X CORPERATION COLLABORATION — RF current drive is predicted to reduce tearing fluctuations in reversed field pinches. Lower hybrid experiments with coupled power up to 125 kW have been undertaken on the Madison Symmetric Torus. The lower hybrid antenna exhibits good coupling under a variety of plasma conditions. Experimental studies have been undertaken to determine the optimal conditions for antenna operation. Additionally, an effort is underway to model plasma loading and launch spectrum using AORSA and RANT. Thirteen CdZnTe detectors are used in conjunction with a 16-channel CdZnTe camera in order to diagnose lower hybrid discharges. X-rays with energies over 60 keV are detected during such discharges. This x-ray emission is observed to be toroidally localized to the area within 60° of the lower hybrid antenna. The spectrum also shows a dependence on launch direction. In order to expand our understanding of these results, several different plasmas have been modeled with GENRAY and CQL3D. Experimental results with source power up to 200 kW and current modeling results will be presented.

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