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EBW Heating in the Pegasus Spherical Experiment[1] F. VOLPE, R. FONCK, A. REDD, U. Wisc., T. BIGELOW, S.J. DIEM, ORNL — Electron Bernstein Wave (EBW) heating (H) and current drive (CD) are strong candidates for the growth of ST plasmas initiated by helicity injection up to become appropriate targets for neutral beam H&CD. Additionally they can improve beta, help sustaining the plasma current and tailor its profile, possibly in synergy with the high harmonic fast wave system. A 2.45GHz, 1MW EBW H&CD system is presently under consideration for a proposal for Pegasus. It would rapidly and cost-effectively address the applicability and scalability of EBW techniques to larger STs such as NSTX and a future component test facility. Two klystrons and part of the hardware originally deployed for lower hybrid heating in the PLT tokamak could serve for this purpose. It is proposed to explore both the ordinary-extraordinary-Bernstein and extraordinary-Bernstein conversion by means of a new launcher capable of oblique, adjustable launch, probably combined with a local limiter to steepen the density profile and so improve the mode conversion efficiency. A phase shifter would make the polarization elliptical, as required for modal purity.

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