

Electron dynamics in SOL plasma with expander divertor

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Control of electron heat losses in the open field region is important for sustaining higher temperature in the FRC core, favorable beam energy deposition, and for limiting heat loads on divertor plates. Here, at Tri Alpha Energy (TAE), a magnetic expander will be used to attain these objectives in the next generation FRC machine (C-2W). A comprehensive study of expander divertor physics is being undertaken at TAE. A 3-D (2 velocity and 1 spatial) Vlasov Fokker Planck code (Ksol) has been developed to study the electron dynamics in the open magnetic field region with magnetic expanders. Numerical results showing the electron dynamics including both confinement vessel and expander divertor will be presented. Electron losses and self-consistent pre-sheath electrostatic potentials are calculated.