

Abstract Submitted
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Suprathermal Electrons Flux and its Effect on the Radial Electric Field in TJ-II¹ JULIO J. MARTINELL, Instituto de Ciencias Nucleares - UNAM — In non-axisymmetric toroidal magnetic configurations such as stellarators the main contribution to neoclassical transport in low collisionality plasmas is due to trapped particles in the magnetic ripples. The unequal ion and electron fluxes result in an ambipolar electric field which is found to be systematically smaller than the one measured by HIBP. We explore the possibility that the cause may be the presence of suprathermal electrons that are created by the ECRH system, pumped out from the center. A kinetic description of the particle transport is followed in which a non-maxwellian velocity distribution is assumed for the electrons having a high velocity component. For the thermal particles, fluxes are computed from previous expressions. Therefore only the contribution from the high energy tail is considered to include the suprathermal contribution in the low collisionality regime. The expression for the electron fluxes is used to obtain the ambipolar radial electric field. This is compared with the electric field obtained from the thermal particles and an estimate of the contribution of the suprathermal electrons is obtained. Experimental comparisons of the radial electric field are made for the TJ-II Helic-stellarator for which good HIBP measurements are available.

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