## Abstract Submitted for the DPP14 Meeting of The American Physical Society

Alpha particle redistribution produced by internal kink modes HUGO FERRARI, Comision Nacional de Energia Atomica, Centro Atomico Bariloche, Bariloche, Argentina and CONICET, Argentina, RICARDO FARENGO, Comision Nacional de Energia Atomica, Centro Atomico Bariloche, Bariloche, Argentina, PABLO GARCIA-MARTINEZ, CONICET, Argentina, MARIE CHRIS-TINE FIRPO, WAHB ETTOUMI, Laboratoire de Physique des Plasmas, CNRS, Ecole Polytechnique, Palaiseau, France, AGUSTIN LIFSCHITZ, Laboratoire d'Optique Appliquee, ENSTA, CNRS, Ecole Polytechnique, Palaiseau, France — The redistribution of alpha particles due to internal kink modes is studied. The exact particle trajectories in the total fields, equilibrium plus perturbation, are calculated. The equilibrium has circular cross section and the plasma parameters are similar to those expected in ITER. The alpha particles are initially distributed according to a slowing down distribution function and have energies between 18 keV and 3.5 M eV. The (1,1), (2,2) and (2,1) modes are included and the effect of changing their amplitude and frequency is studied. When only the (1,1) mode is included the spreading of high energy ( $E \ge 1 \text{ MeV}$ ) alpha particles increases slowly with the energy and mode frequency. At lower energies the redistribution is more sensitive to the mode frequency and particle energy. When a (2; 1) mode is added the spreading increases significantly and particles can reach the edge of the plasma. Trapped particles are the most affected and the redistribution parameter can have maxima above 1 MeV, depending on the mode frequency. These results can have important implications for ash removal.

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