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Electron heating in the lower hybrid current drive problem VALENTIN SHEVCHENKO, VITALY GALINSKY, University of California, San Diego — Due to resonant interaction with lower hybrid waves in the LHCD problem, part of electrons are accelerated and, as a result of this, the tail of energetic electrons is formed on the electron distribution function. This distribution can be unstable with respect to excitation of oblique Langmuir waves - so called fan instability [1, 2] that is an effective mechanism of pitch angle diffusion of the tail electrons. In this case the tail electrons interact simultaneously with both (i) LH waves that accelerate them (Landau resonance) and (ii) waves excited in the process of the fan instability (anomalous Doppler resonance) that lead to their pitch angle diffusion. Because velocity diffusion lines of electrons formed due to heir interaction with each type of waves intersect, this interaction can lead not only to pitch angle diffusion but also to heating of electrons mainly in perpendicular direction. We investigated this heating mechanism of the tail electrons. We studied the temporal evolution of the tail electrons temperature and energy of excited waves assuming constant amplitudes of pump LH waves. 1. Kadomtsev, B.B. and O.P. Pogutse, Sov. Phys. JETP, 26, 1146 (1967). 2. Shapiro, V.D. and V.I. Shevchenko, Sov. Phys. JETP, 27, 635 (1968).

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