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Electron beam instabilities in fast ignition ROBERT BINGHAM, STFC/RAL, JOSE MENDONCA, GoLP Instituto Superior Tecnico, PETER NORREYS, NATHAN SIRCOMBE, RAOUL TRINES, STFC/RAL — In fast ignition inertial fusion intense relativistic electron beams, generated by the ignition laser, propagate into the dense plasma where the energy is deposited. The beam undergoes a number of instabilities. In particular the two stream and Weibel instabilities have been identified as important in the evolution and absorption of the beam. The two stream results in Langmuir waves that undergo parametric decay into ion acoustic waves and lower frequency Langmuir waves that heat the ions. The Weibel instability on the other hand generates small scale magnetic field structures. These magnetic structure can be responsible for a reduction in thermal conductivity. Studies of these instabilities and there effectiveness with in the fast ignition scheme will be presented.

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