The velocity dependent Krook model to calculate energetic electron transport in a laser produced plasma[1] WALLACE MANHEIMER, Retired from the Naval Research Laboratory — Energetic electrons, with energy from many tens to several hundred kilovolts can be generated in laser produced plasmas by such laser plasma instabilities as the $2\omega_p$ instability, which occurs at the quarter critical density. It is important to know now only how these are produced, but also how they are transported and deposit their energy in the interior and whether they preheat the fuel. This poster reviews approaches used by other laboratories including flux limited multi-group diffusion, Fokker Planck simulations, and PIC simulations in conjunction with Monte Carlo simulations. We introduce the velocity dependent Krook (VDK) approach to this problem. We have used this approach to examine nonlocal electron thermal energy transport in laser produced plasmas. There are important similarities and differences between the two problems which are examined. Also there are important differences between the VDK and say Fokker Planck approach which one should keep in mind. The VDK approach is reasonably accurate and reasonably simple and economical to incorporate into a fluid simulation.

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