Analytic insights into non-local electron energy transport: Steady state Krook and Fokker Planck theory in spherical geometry[1] WALLACE MANHEIMER, United States Naval Research Laboratory, DENIS COLOMBANT, Retired — This work develops a Krook and Fokker Planck theory of non-local electron energy transport in a laser fusion target. There have been two basic theories, which we call the NRL (1) and SNB (2) models, both of which have been worked out in planar geometry, In planar geometry, there are differences between them, but the theories are basically the same. However in spherical geometry, the NRL model is much closer to the spherically correct model, in fact the SNB model as formulated does not allow preheat in the fuel portion of a laser target. This is consistent with the results of numerical implosion models based on this model (3), where they saw no preheat. Using the NRL Krook model, there is a great deal of preheat. However using a Fokker Planck, rather than a Krook model, does greatly reduces the fuel preheat. 1. W. Manheimer, D. Colombant, and A Schmitt, Phys. Plasmas 25, 082711, 2018 2. G. Schurtz, P. Nicolai and M. Busquet, Phys Plasmas, 7 (10) 4238, 2000 3. A Marocchino, S. Atzeni, and A. Schiavi, Phys Phys. Plasmas 21, 012710, 2014

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