

Abstract Submitted  
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**Experimental signatures of suprathermal ion distribution in inertial confinement fusion implosions**<sup>1</sup> GRIGORY KAGAN, DANIIL SVYATSKIY, Los Alamos National Lab, HANS RINDERKNECHT, MICHAEL ROSENBERG, ALEX ZYLSTRA, Massachusetts Institute of Technology, CHENGKUN HUANG, CHRISTOPHER MCDEVITT, Los Alamos National Lab — The distribution function of suprathermal ions is found to be self-similar under conditions relevant to inertial confinement fusion hot-spots. By utilizing this feature, interference between the hydro-instabilities and kinetic effects is for the first time assessed quantitatively to find that the instabilities substantially aggravate the fusion reactivity reduction. The ion tail depletion is also shown to lower the experimentally inferred ion temperature, a novel kinetic effect that may explain the discrepancy between the exploding pusher experiments and rad-hydro simulations and contribute to the observation that temperature inferred from DD reaction products is lower than from DT at National Ignition Facility.

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