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Ultra High Mode Mix in NIF NIC Implosions ROBBIE SCOTT, STFC Rutherford Appleton Laboratory, WARREN GARBETT, AWE — This work re-examines a sub-set of the low adiabat implosions from the National Ignition Campaign [1] in an effort to better understand potential phenomenological sources of excess mix observed experimentally. An extensive effort has been made to match both shock-timing and backlit radiography (Con-A)[2] implosion data in an effort to reproduce the experimental conditions as accurately as possible. Notably a 30The reduced ablation pressure required to match the experimental data allows the ablator to decompress, in turn causing the DT ice-ablator interface to go Rayleigh-Taylor unstable early in the implosion acceleration phase. Post-processing the runs with various mix models indicates high-mode mix from the DT ice-ablator interface may penetrate deep into the hotspot. This work offers a potential explanation of why these low-adiabat implosions exhibited significantly higher levels of mix than expected from high-fidelity multi-dimensional simulations. Through this new understanding, a possible route forward for low-adiabat implosions on NIF is suggested. References [1] Lindl et al., Physics of Plasmas 21, 020501 (2014) [2] Hicks et al., Physics of Plasma s19, 122702 (2012)

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