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Reaction-in-Flight Neutrons as a Probe of Hydrodynamical Mixing at NIF ANNA HAYES, Los Alamos National Laboratory, GARY GRIM, JERRY JUNGMAN, Los Alamos — At the National Ignition Facility (NIF) reaction-in-flight (RIF) neutrons above the main 14 MeV peak make up about 0.5% of the neutrons production. In this talk we present calculations that show the sensitivity of the RIF neutron production to hydrodynamical mixing of the outer shell of the NIF capsule into the main dt fuel. This mixing generally quenches the dt burn and could be a serious mode of ignition failure. These calculations suggest that a time-of-flight measurement or radiochemical measurement of the RIF neutrons could be used as a robust indicator of the degree o mix taking place in an imploded NIF capsule.

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