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Inferring the apparent ion-temperature from MagLIF implosions using a forward-fit technique JEDEDIAH STYRON, GARY COOPER, Univ of New Mexico, CARLOS RUIZ, GORDON CHANDLER, MICHAEL MANGAN, Sandia National Laboratories, SARA PELKA, COLIN WEAVER, Univ of New Mexico, CLARK HIGHSTRETE, JOSE TORRES, GARY WHITLOW, Sandia National Laboratories — A high-resolution neutron transport model has been developed in MCNP to simulate neutrons produced from MagLIF experiments conducted at Sandia National Laboratories' Z-Machine. Results of these simulations show that neutron interactions in the complex load hardware and bremsstrahlung shielding directly in the line-of-sight broaden the neutron time-of-flight signal, which can lead to an overestimation of the average ion-temperature by as much as 500 eV for nominal MagLIF conditions at the 9.5m detector location. A family of potential nToF signals at different source conditions were generated in MCNP and convolved with an instrument response function and compared to experimental data. Using this technique, it is feasible to infer the apparent ion-temperature, Be liner areal density and neutron yield from a single measurement. SNL is managed and operated by NTESS under DOE NNSA contract DE-NA0003525

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