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## 10.22 Recent Improvements and Successes of the NIF Opacity Spectrometer

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In May 2017, the Opacity Spectrometer (OpSpec) recorded the first X-ray transmission data for iron-magnesium plasmas on NIF, at “Anchor 1” sample conditions (150 eV and 7E21 e-/cc). The OpSpec is a critical diagnostic that will be used to collect data needed to verify recent iron opacity measurements done at the Sandia National Laboratory’s Z-facility. OpSpec diffracts X-rays in the 540-2100 eV range off a KAP or RbAP crystal onto either image plates or, most recently, X-ray film. Modifications to further improve OpSpec’s performance have been implemented in recent NIF shots in August and December 2017. Significant improvements were seen in the reduction of background levels, mitigation of damage to the crystals and rear filters and in increased resolving power toward a goal of  $E/dE > 700$ . This poster will present these improvements and the resulting data. Future design improvements and goals for 2018 will also be discussed. DOE/NV/03624--0024

Primary author(s) : KING, James (Nevada National Security Site)

Co-author(s) : HEETER, Robert (Lawrence Livermore National Lab); OPACHICH, Yekaterina (Nevada National Security Site); KNIGHT, Russell (Nevada National Security Site); AHMED, Maryum (Lawrence Livermore National Lab); THOMAS, Archuleta (Los Alamos National Lab); JAY, Ayers (Lawrence Livermore National Lab); EVAN, Dodd (Los Alamos National Lab); JIM, Emig (Lawrence Livermore National Lab); KIRK, Flippo (Los Alamos National Lab); ERIC, Huffman (Nevada National Security Site); JOHN, Kline (Los Alamos National Lab); LIEDAH, Duane (Lawrence Livermore National Lab); LOPEZ, Frank (Los Alamos National Lab); SCHNEIDER, schneider5@llnl.gov (Lawrence Livermore National Lab); THOMPSON, Nathaniel (Lawrence Livermore National Lab); PERRY, Ted (Los Alamos National Lab)

Presenter(s) : KING, James (Nevada National Security Site); HEETER, Robert (Lawrence Livermore National Lab); OPACHICH, Yekaterina (Nevada National Security Site); KNIGHT, Russell (Nevada National Security Site); AHMED, Maryum (Lawrence Livermore National Lab); THOMAS, Archuleta (Los Alamos National Lab); JAY, Ayers (Lawrence Livermore National Lab); EVAN, Dodd (Los Alamos National Lab); JIM, Emig (Lawrence Livermore National Lab); KIRK, Flippo (Los Alamos National Lab); ERIC, Huffman (Nevada National Security Site); JOHN, Kline (Los Alamos National Lab); LIEDAH, Duane (Lawrence Livermore National Lab); LOPEZ, Frank (Los Alamos National Lab); SCHNEIDER, schneider5@llnl.gov (Lawrence Livermore National Lab); THOMPSON, Nathaniel (Lawrence Livermore National Lab); PERRY, Ted (Los Alamos National Lab)

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