

# ***X-ray diagnostics of dense plasmas relevant to stellar interiors and inertial fusion energy***

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I will report on recent experiments at the National Ignition Facility (NIF) and the European XFEL to mimic extreme conditions comparable to the interior of small stars or the envelope of white dwarfs. We employ spectrally resolved X-ray scattering and X-ray imaging to characterize the equation of state parameters (density, temperature, ionization) as well as transport properties (opacity and conductivity) at these extreme conditions. I will discuss the different capabilities at the two facilities and how complementary experiments can help to shed light into the complex physics of dense plasmas.