

Abstract Submitted
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Time resolution constraints of x-ray crystal spectrometers on NIF¹ ERIC WANG, PETER BEIERSDORFER, MARILYN SCHNEIDER, RONNIE SHEPHERD, ALEXANDER GRAF, Lawrence Livermore National Laboratory, MANFRED BITTER, KEN HILL, Princeton Plasma Physics Laboratory — X-ray crystal spectrometers have been used successfully to measure the ion temperature within tokamaks. To apply this measurement to laser-heated plasmas, one would desire a very high time resolution to image the evolution of temperature over the duration of the shot. Standing in the way of the highest time resolution measurements is the fact that the path length of light from a finite source onto a crystal of finite size varies. Here we present the shortest time that could be resolved in a representative NIF shot as a function of crystal and source size.

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