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**Time-resolved measurements of in-flight ablator performance using streaked x-ray radiography** DAMIEN HICKS, BRIAN SPEARS, CHUCK SORCE, PETER CELLIERS, OTTO LANDEN, GILBERT COLLINS, Lawrence Livermore National Laboratory, THOMAS BOEHLY, University of Rochester — Determining ablator performance during an implosion is a critical part of the NIF tuning campaign. In particular, it is vital to have an accurate, in-flight measure of the velocity, areal density, and mass of the ablator. We present a new technique which achieves time-resolved measurements of all these parameters in a single, area-backlit, streaked radiograph. This is accomplished by tomographically inverting the radiograph to determine the radial density profile at each time step; scalar quantities such as the average position, thickness, areal density, and mass of the ablator can then be determined simply by taking moments of this density profile. Application of this technique is demonstrated on Cu-doped Be capsule implosions at Omega. This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

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