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Analysis of the spatial structure of ICF implosion cores using a multi-objective method for fitting pinhole image intensity profiles TAISUKE NAGAYAMA, ROBERTO MANCINI, LESLIE WELSER, SUSHIL LOUIS, University of Nevada, Reno, R. TOMMASINI, J. KOCH, N. IZUMI, Lawrence Livermore National Laboratory, J. DELETTREZ, F.J. MARSHALL, S. REGAN, V. SMALYUK, Laboratory for Laser Energetics, I. GOLOVKIN, Prism Computational Sciences, D. HAYNES, G. KYRALA, Los Alamos National Laboratory, UNIVERSITY OF NEVADA, RENO COLLABORATION, LAWRENCE LIVERMORE NATIONAL LABORATORY COLLABORATION, LABORATORY FOR LASER ENERGETICS COLLABORATION, LOS ALAMOS NATIONAL LABORATORY COLLABORATION — We apply a method for the simultaneous and self-consistent fitting of a set of intensity spatial profiles from several narrow-band x-ray pinhole images from argon-doped ICF implosion cores, and the space-integrated line spectrum. The data was recorded in a series of argon-doped, deuterium-filled plastic shell implosion experiments performed at OMEGA. This method is independent of geometry inversions and takes advantage of both optically thin and thick image data. Results are shown for four-objectives based on argon Lyα, Heβ, and Lyβ image data, and the space-integrated line spectrum. This work is supported by DOE-NLUF Grant DE-FG52-05NA26012, and LLNL under Contract W-7405-Eng-48.

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