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A Fiber Interferometer for the Magnetized Shock Experiment[1]
C.B. YOO, PPPL NUF, LANL, Harvard College, K.W. GAO, T.E. WEBER, T.P. INTRATOR, LANL — The Magnetized Shock Experiment (MSX) at Los Alamos National Laboratory requires remote diagnostics of plasma density. Laser interferometry can be used to determine the line-integrated density of the plasma. A multi-chord heterodyne fiber optic Mach-Zehnder interferometer is being assembled and integrated into the experiment. The advantage of the fiber coupling is that many different view chords can be easily obtained by simply moving transmit and receive fiber couplers. Several such fiber sets will be implemented to provide a time history of line-averaged density for several chords at once. The multiple chord data can then be Abel inverted to provide radially resolved spatial profiles of density. We describe the design and execution of this multiple fiber interferometer.

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C. B. Yoo
PPPL NUF, LANL, Harvard College

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