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The input optics of Advanced LIGO D.B. TANNER[1], M.A. ARAIN, G. CIANI, D. FELDBAUM, P. FULDA, J. GLEASON, R. GOETZ, M. HEINTZE, R.M. MARTIN, C.L. MUELLER, L.F. WILLIAMS, G. MUELLER, University of Florida, V. QUETSCHKE, University of Texas Rio Grande Valley, W.Z. KORTH, D.H. REITZE, California Institute of Technology, R.T. DEROSA, A. EFFLER, K. KOKEYAMA, Louisiana State University, V.V. FROLOV , A. MULLAVEY, LIGO Livingston Observatory, J. POELD, Max-Planck-Institut für Gravitationsphysik —
The Input Optics (IO) of advanced LIGO will be described. The IO consists of all the optics between the laser and the power recycling mirror. The scope of the IO includes the following hardware: phase modulators, power control, input mode cleaner, an in-vacuum Faraday isolator, and mode matching telescopes. The IO group has developed and characterized RTP-based phase modulators capable of operation at 180 W cw input power. In addition, the Faraday isolator is compensated for depolarization and thermal lensing effects up to the same power and is capable of achieving greater than 40 dB isolation.

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