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Theory Experiment

Wide-angle Tangential Viewing System for DIII-D,* C.J. Lasnier, S.L. Allen, M.E. Fenstermacher, D.N. Hill, T.R. Weber, *LLNL* – We are designing a wide-angle tangential viewing system for DIII-D, with co-registered views in the visible and IR. We will examine toroidal and poloidal asymmetries of wall heating and particle flux during ELMs, magnetic perturbations, and disruptions; toroidal and poloidal mode structure of ELMs; poloidal distribution of particle flow velocities, and others. The system will simultaneously view the inner wall, outer wall, and upper and lower divertors, and will have an independent 3X optical zoom capability in visible and IR. Various parts of the image may be viewed at 3X magnification by translating the camera(s) vertically and laterally in the image plane. For IR we have a FLIR SC6000HS 3-5 μm camera, and for visible a Phantom V7.3. Both have high frame rate capability. Visible wavelength and neutral density filters may be selected, or interferometric flow measurement optics may be substituted for the filter system. This system was inspired by a design by CEA Cadarache for JET, and is similar to a system designed by LLNL for ITER upper ports.

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