

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Fast visible 2-D camera imaging on NSTX¹ A.L. ROQUEMORE, R. KIATA, D. DARROW, S. ZWEBEN, T. GRAY, PPPL, N. NISHINO, U. Hiroshima, R. MAQUEDA, Nova Photonics, C. BUSH, ORNL, L. DORF, G. WURDEN, LANL, K. SHINOHARA, JAERI — Initial applications of 2-D cameras on tokamak devices were mainly used to gain qualitative insight into global dynamics such as plasma formation and motion. Quantitative data were limited, due in large part to the time scales of most plasma events that were far faster than the frame rate of the camera and the inability to resolve structures at the characteristic plasma scale lengths. Recent advances in the development of fast cameras increased the frame rate up to megahertz rates while exposure times as short as 3nsec have been achieved with intensifiers. NSTX supports 8 fast visible cameras with framing rates ranging from 10^3 to 10^6 frames/sec with resolution from 64 X 64 to 1024 X 1080 pixels at the shortest exposure times. These cameras have been used to study plasma phenomena including edge and divertor turbulence, ELMs, and impurity transport. The most recent applications include studies of supersonic gas jets, pellet ablation, incandescent dust behavior, and measurement of fast ion loss of neutral beam injected particles. The capabilities of each camera will be presented and movies of plasma phenomena recorded with them will be presented.

¹US DOE Contract DE-AC02-76CH03073

A.L. Roquemore

Date submitted: 26 Jul 2005

Electronic form version 1.4