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**Development of a fast EUV movie camera for study of magnetic reconnection in magnetically driven plasma jets** KIL-BYOUNG CHAI, PAUL BELLAN, Caltech — The Caltech MHD driven jet experiment involves a low temperature ($\sim$5 eV) and high density ($\sim 10^{21}$ m$^{-3}$) plasma that travels at 10's of km/s. During and after formation, magnetic reconnections are observed together with kink and Rayleigh-Taylor instabilities [1]. It has also been observed that there are highly transient EUV emissions when there is magnetic reconnection. The first EUV peak occurs when flux tubes merge during formation and the second one occurs when a Rayleigh-Taylor instability causes the jet to break off from its source electrode. It would be helpful for understanding magnetic reconnection to investigate the spatial and temporal behaviors of these EUV bursts associated with magnetic reconnection. In order to achieve this, we are developing a high speed EUV movie camera. It consists of an Al coated YAG:Ce scintillator, an Au parabolic mirror (or a multilayer coated mirror for a specific EUV wavelength) and a fast framing camera (2x10$^8$ fps). We tested our system using visible light from the actual plasma jet and obtained image sequence with submicron time resolution.

[1] A. L. Moser and P. M. Bellan, Nature **482**, 379 (2012).

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