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Experimental studies of magnetic and electrostatic fluctuations on the VTF reconnection experiment[1] WILLIAM FOX, J. EGEDAL, N. KATZ, M. PORKOLAB, MIT — We present studies of magnetic and electrostatic fluctuations observed during reconnection in the new closed magnetic configuration of the VTF experiment at MIT [1]. We have observed fairly steady magnetic fluctuations near the lower hybrid frequency ($\sim$ 10 MHz) punctuated by bursts of higher frequency fluctuations in the Buneman range, $(m_e/m_i)^{1/3} f_{pe}$, $\sim$ 200 MHz. Experiments are underway to study tip-tip correlations on the RF probes and also between fluctuation level and reconnection rate. In addition, the higher frequency modes may indicate the creation of superthermal electron populations during reconnection; we are now installing detectors for soft x-ray Bremsstrahlung. Finally, we present conclusions of previous studies of electron momentum balance during driven reconnection for the open field line configuration of VTF [2].

[1] J. Egedal, et al. (2006) Laboratory observations of spontaneous magnetic reconnection. Submitted to *Phys. Rev. Lett.*
[2] J. Egedal, et al. (2000) *Rev. Sci. Instrum.* 71, 3351.

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William Fox
MIT

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