

Abstract Submitted  
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**Behavior of Escaping Fast Ions From DIII-D Tokamak**<sup>1</sup> Y.B. ZHU, W.W. HEIDBRINK, University of California, Irvine — The behavior of escaping fast ions from DIII-D Tokamak is investigated. Two pairs of thin foil Faraday collectors provide the energetic ion loss signals from the co/counter plasma current directions. The data are compared with neutron flux and fast ion deuterium alpha (FIDA) measurements. Comparative studies show that the signals are correlated with toroidal field and certain plasma parameters, such as plasma current, loop voltage, temperature and rotation. Further studies on the modulation of prompt ion loss induced by neutral beam injection, and enhanced fast ion loss from ion cyclotron radio frequency and MHD are reported. The secondary electron emission effect, which is believed to be responsible for the negative signal from blind background foil [1], is observed and qualitatively proven by active foil biasing experiments.  
[1] M. Isobe, *et al.*, Rev. Sci. Instrum. **77**, 10F508 (2006).

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