



Beam Ion Loss from NSTX Plasmas

D. Darrow, E. Fredrickson, A. L. Roquemore,
K. Shinohara (JAEA)

Goal: understand fast ion loss in STs

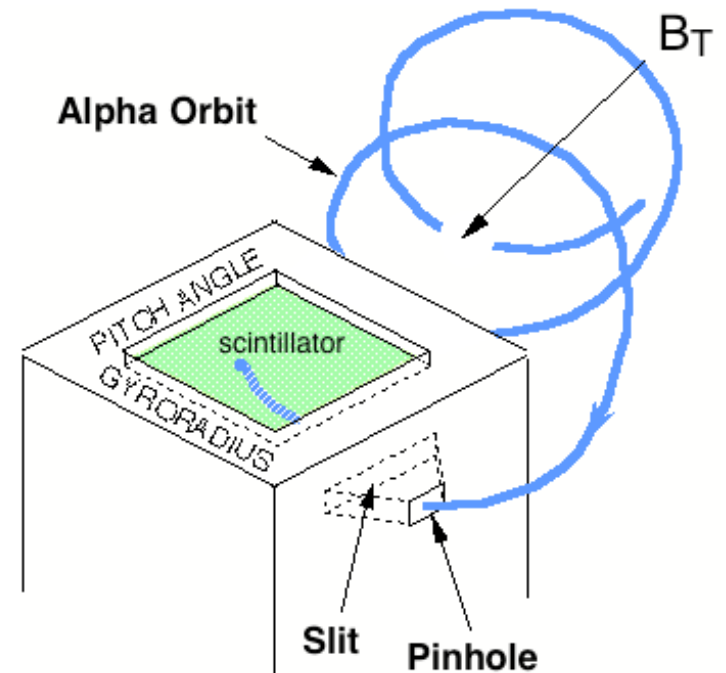
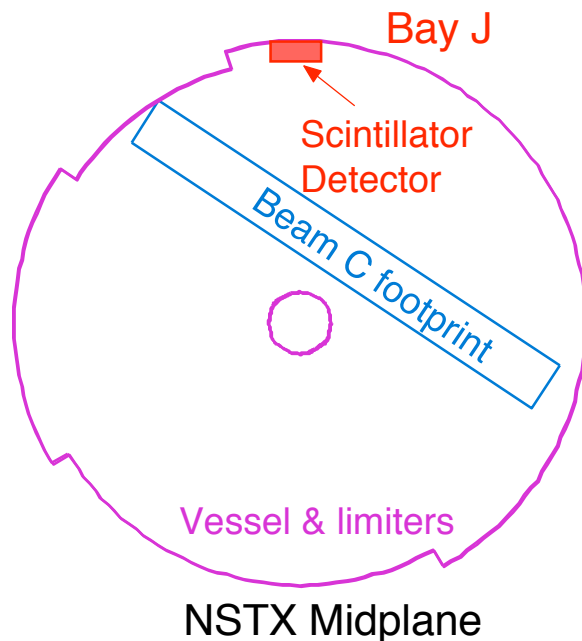
NSTX Results Review

July 26, 2006

Scintillator fast lost ion (sFLIP) probe is magnetic spectrometer

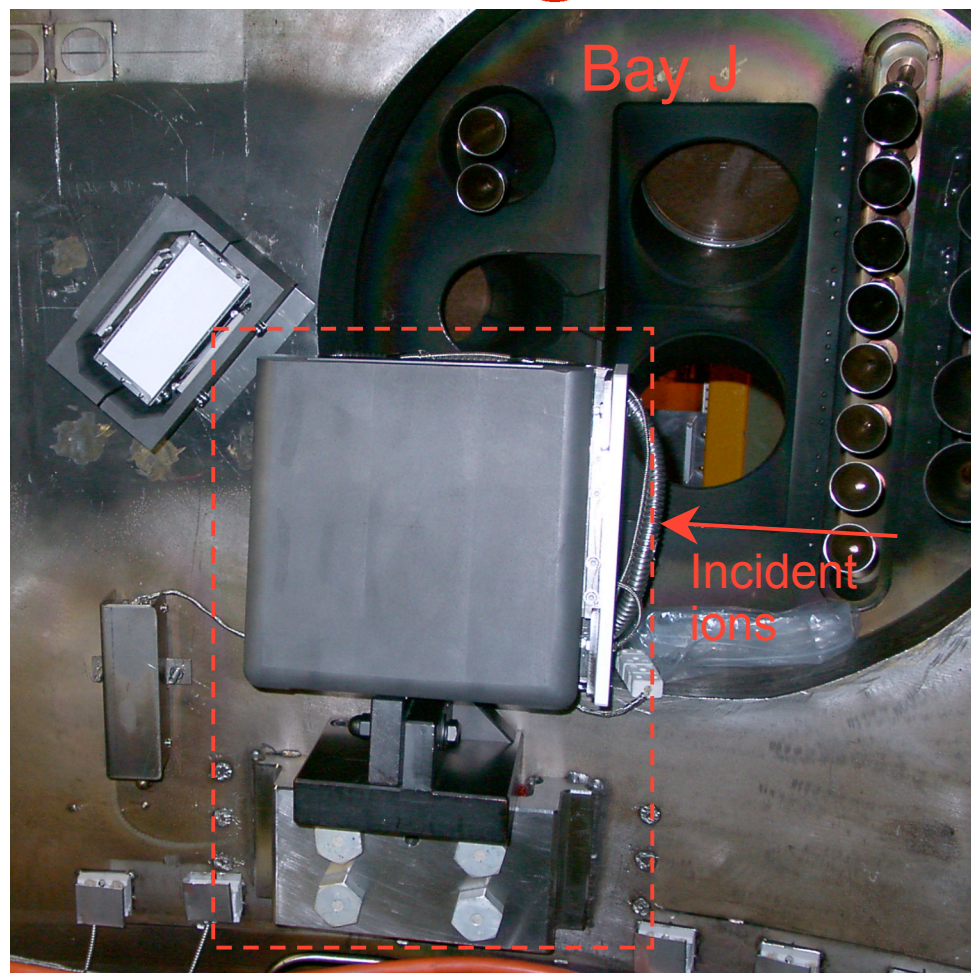
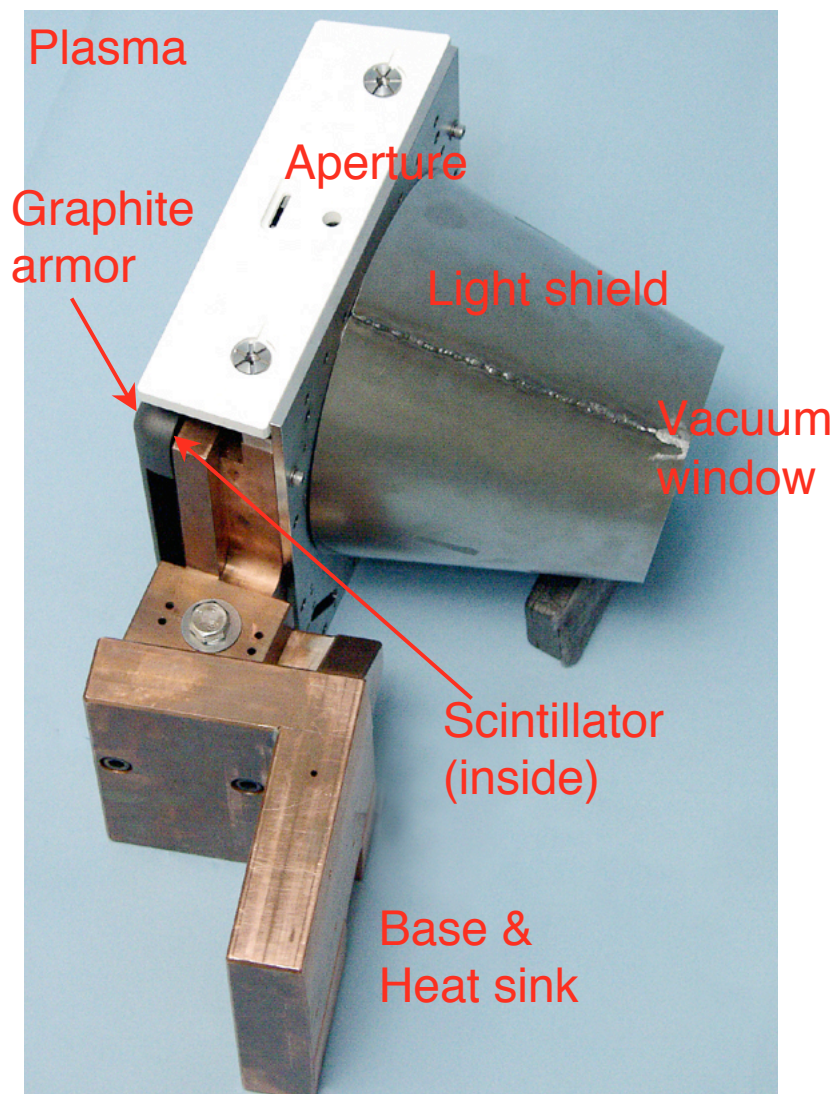


- Combination of B and aperture geometry disperse different pitch angles and energies on scintillator plate



Scintillator detector:
principle of operation

Scintillator probe assembly



ρ : 5–60 cm, χ : 10°–70° (typ.)

Scintillator images recorded by fast videocamera

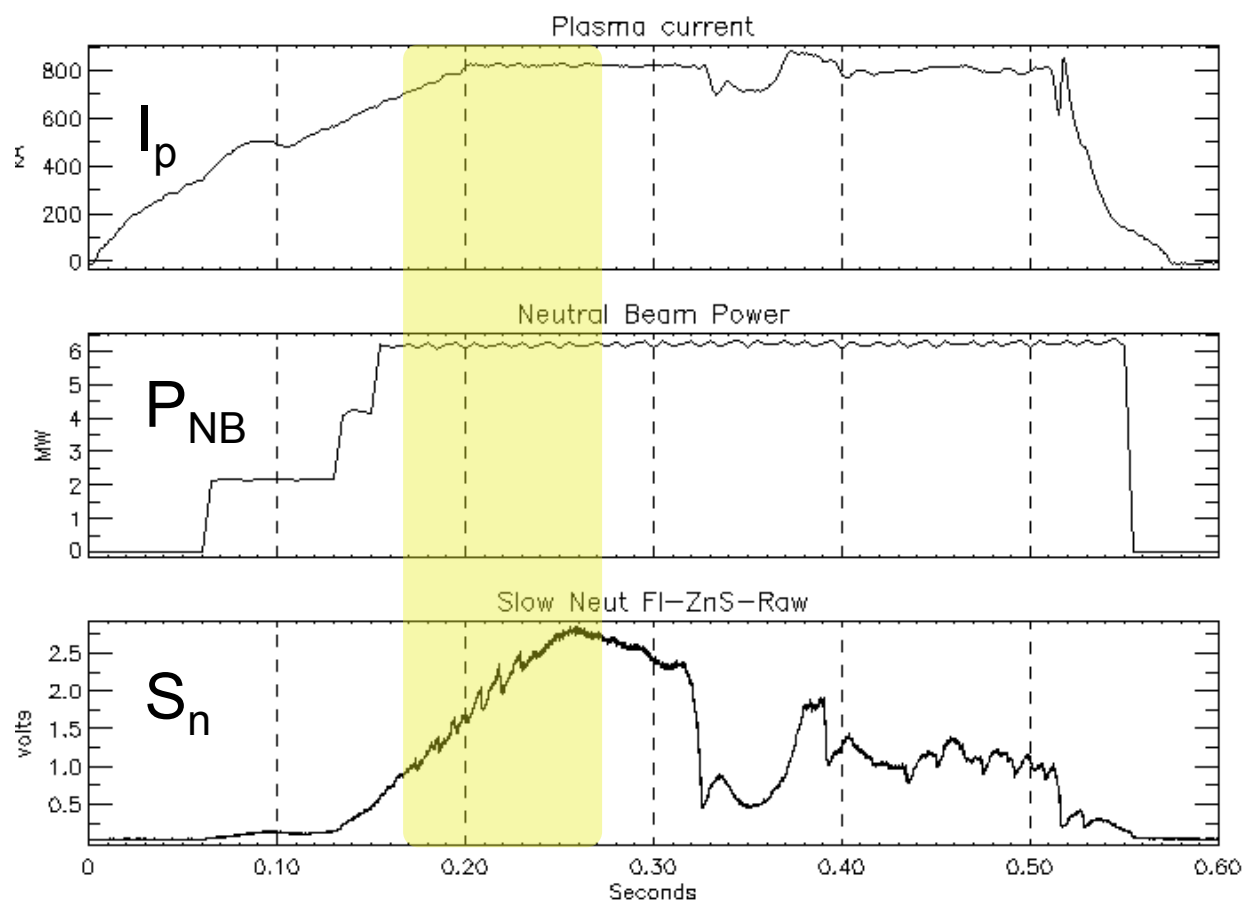


- Photron Fastcam on loan from JAEA for 2005 & 2006 campaigns
- Gives $\leq 40,500$ frames/s
- Good for resolution of MHD & other rapidly-varying loss

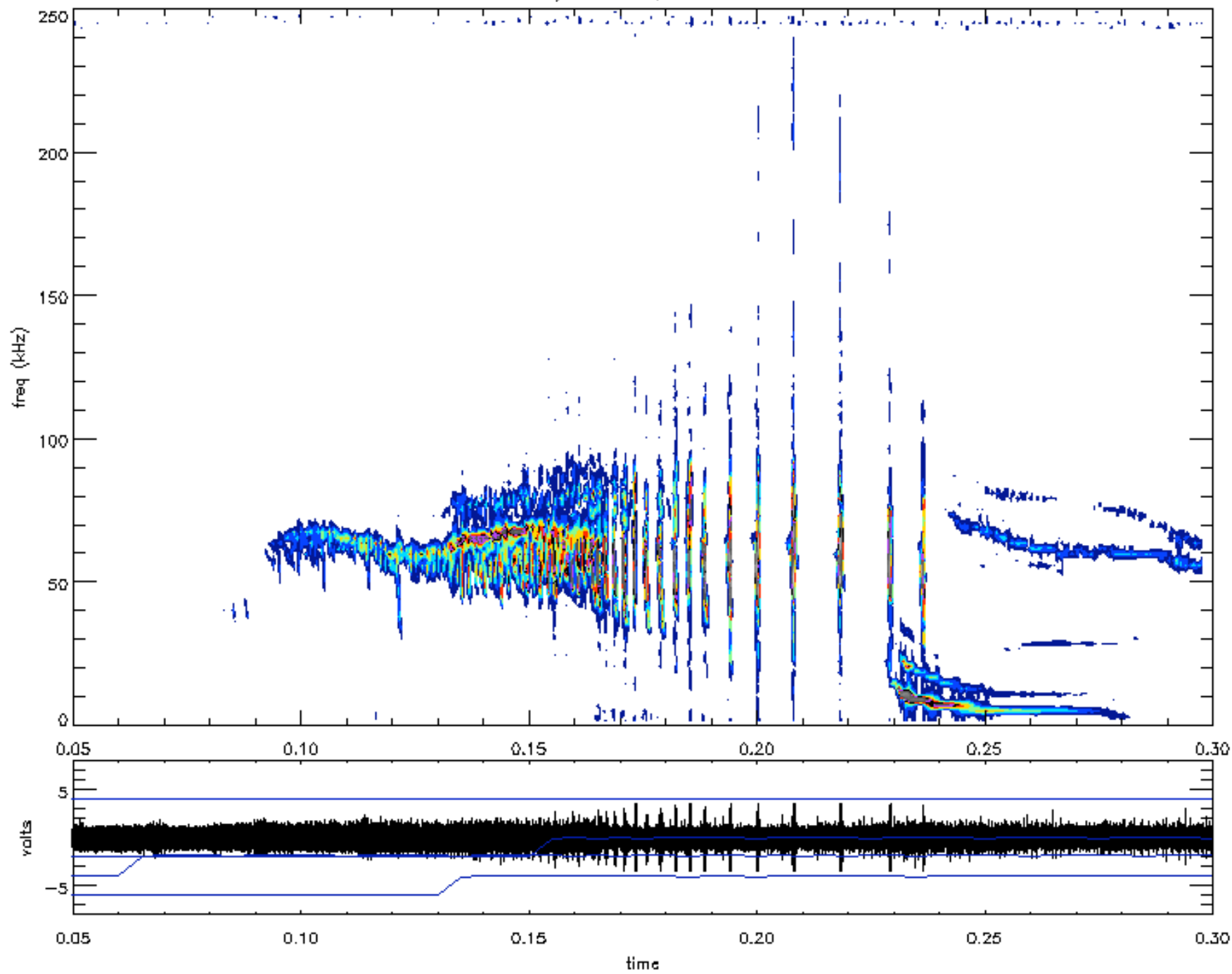
Fishbones produce strong loss



119624 (see loss movie)



shot 119624, device: \bdot_l1dmiwvhn2_raw



Future plans



- Apply (ρ, χ) grids to images
- Obtain another fast camera for '07 campaign
- Make absolute calibration of loss rate with internal Faraday cups