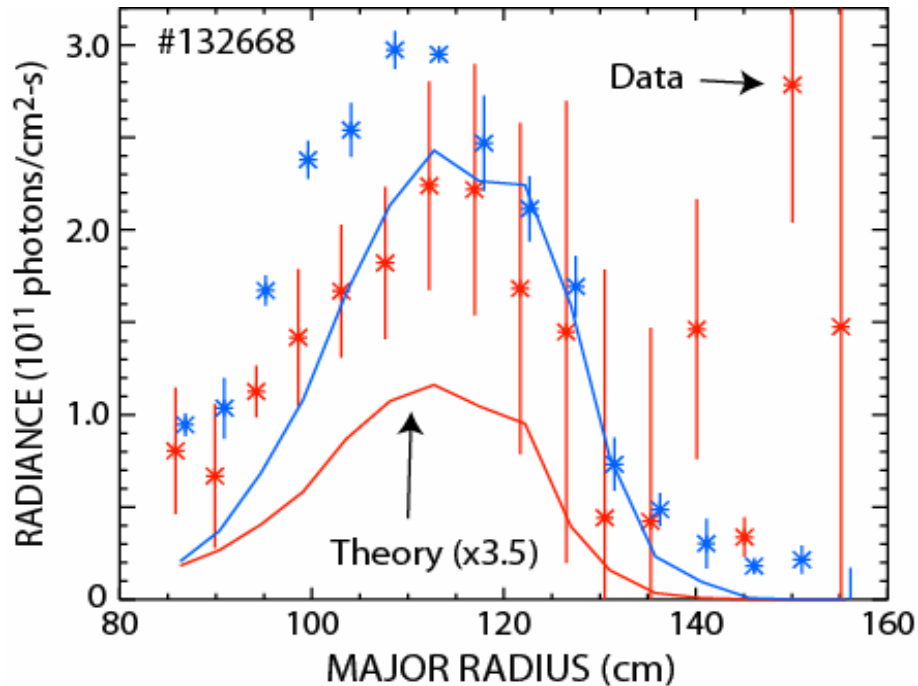


Heidbrink: Four possible experiments

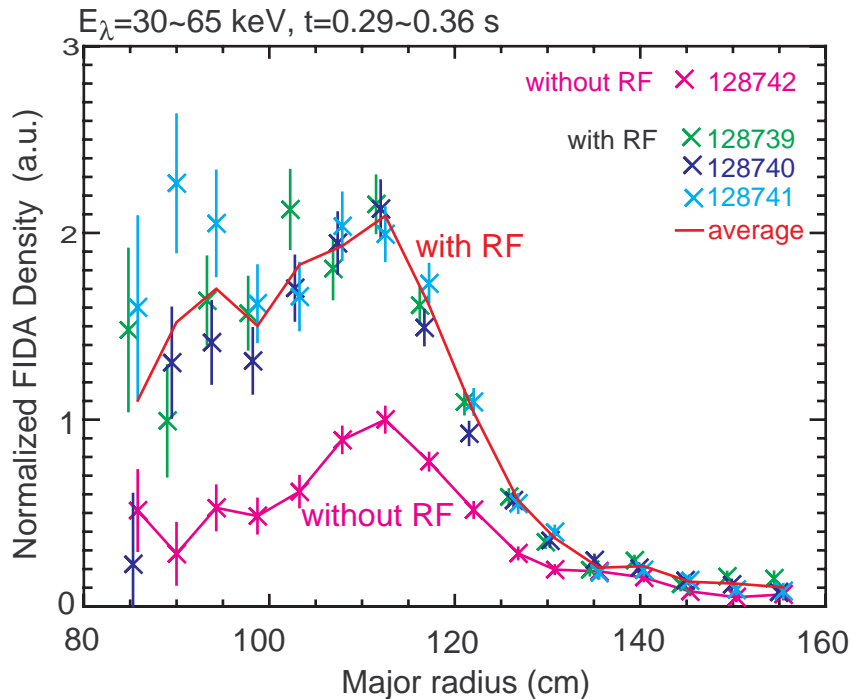
- 1) Reversed current (or B_T) quiet plasmas for FIDA spectra
- 2) HHFW fast-ion acceleration with modulated RF
- 3) EPM/fishbone fast-ion transport with fast SSNPA
- 4) HHFW suppression of rapidly-chirping modes

1) FIDA Red/Blue Spectral Study



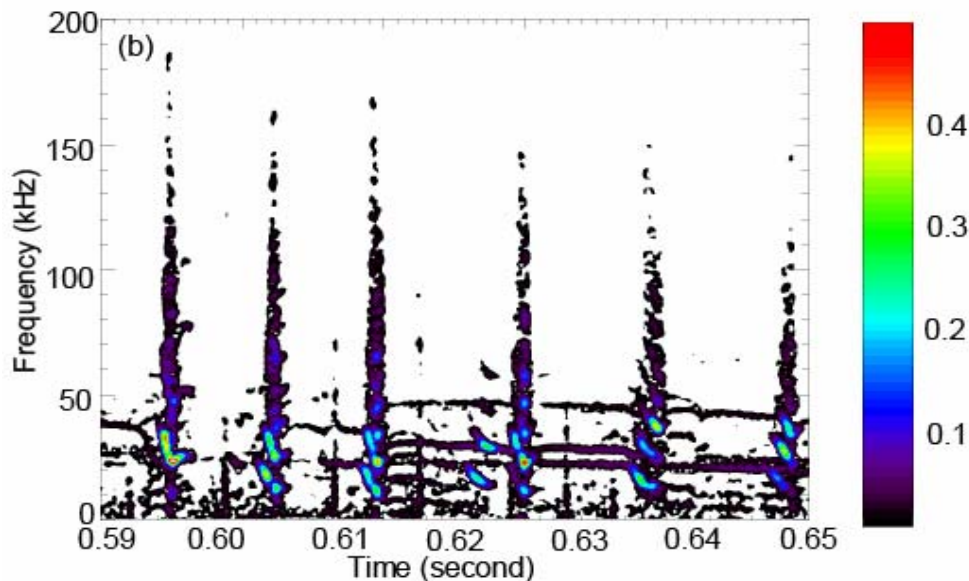
- Outstanding discrepancy between theory and experiment in the ratio of the red-shifted and blue-shifted FIDA signals
- 2009 reversed-field shots unsuccessful
- Try again in 2010 when either I_p or B_T are reversed
- Only need 1-2 good shots

2) HHFW acceleration of fast ions



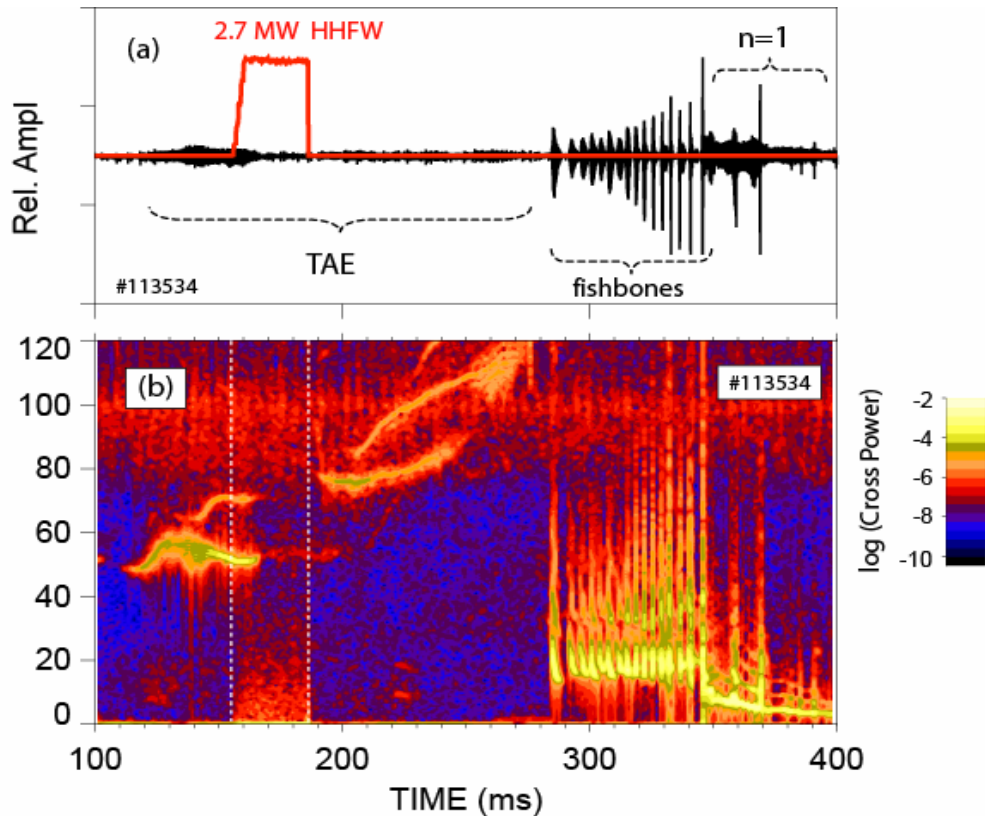
- Measured RF-accelerated profile in 2008 experiment
- Used steady RF and modulated beams
- Attempts to model profile with CQL3D and ORBIT-RF are in progress
- Modulated RF (~50 ms on/50 ms off) could give more information about the development of the fast-ion tail
- ½ day experiment

3) EPM/fishbone fast-ion transport



- Deyong got interesting SSNPA data at these bursts
- The SSNPA will have high temporal resolution (but no energy resolution) in 2010
- Want to compare f-FIDA data with SSNPA bursts
- BES available → improved eigenfunction?

4) Encore: Effect of HHFW on chirping



Plasma Phys. Cont. Fusion 48 (2006) 1347.

- HHFW did not suppress chirping of fishbones
- Changed TAEs on slow timescale but did not suppress chirping
- Probably altered CAE/GAE chirps (limited data)
- Need better insight into a) part of phase space that drives instabilities & b) effect of HHFW in phase space → **Better eigenfunction & fast-ion diagnostics**

Have added many fast-ion & fluctuation diagnostics since 2004!