XP-537 HHFW Current Drive with MSE

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August 18, 2005

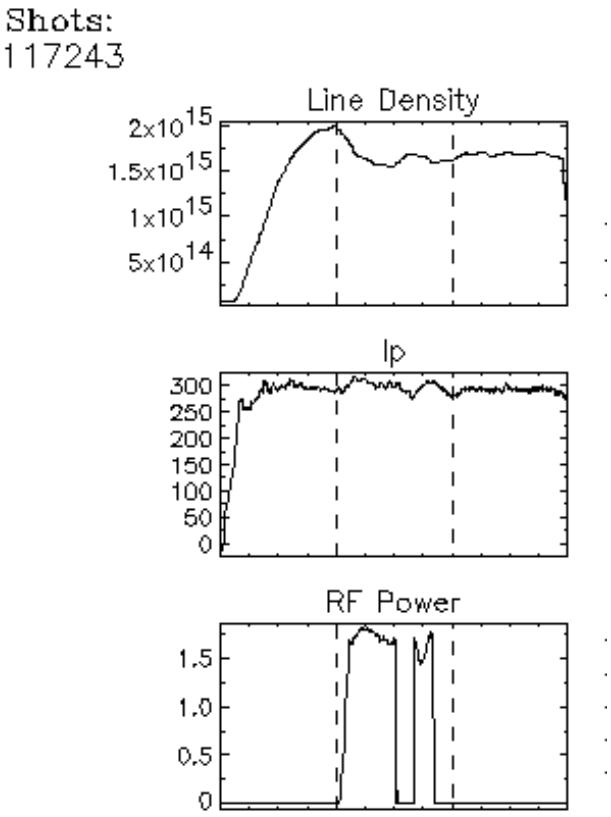
Goal: Explore viability of measuring HHFW CD with MSE

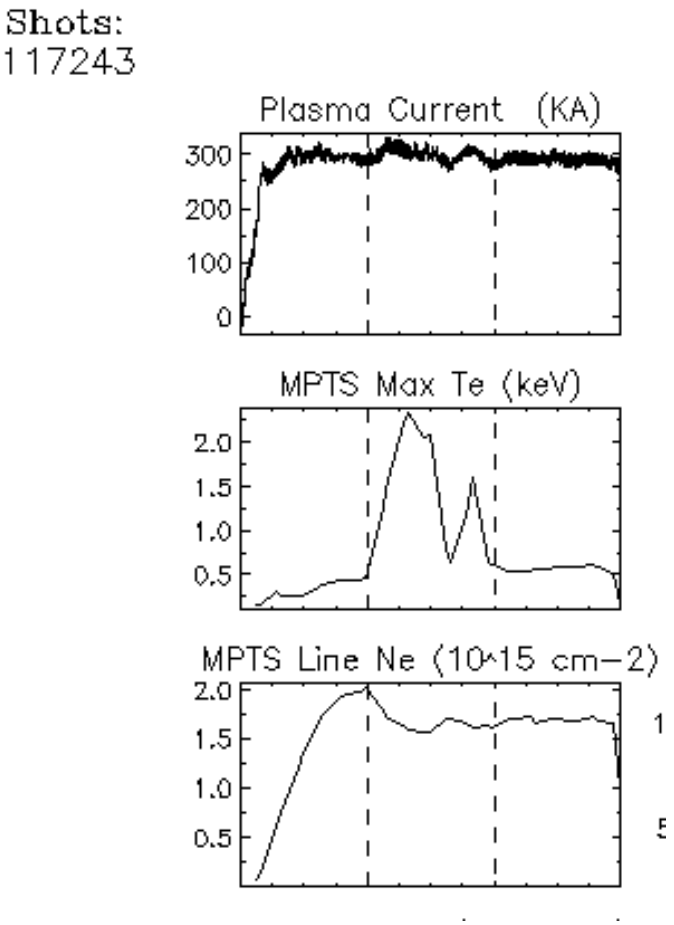
- Only magnetics have been used to estimate HHFW driven current
- No spatial information obtained
- Surface voltage responds to other sources of flux
- MSE responds locally
  - May separate these effects

Strategy

- Use 300 kA discharge that worked well for HHFW heating experiments
  - Maximize CD effect
  - Hopefully minimize both the NBI affect on plasma and NBI absorption of rf
- Use constant one source NBI
- Scan phase, $14m^{-1}$, co, ctr and balanced $7m^{-1}$

Target shot 117243





PHYSICS OPERATIONS REQUEST

OP-XP-537

Machine conditions (specify ranges as appropriate)

I_{TF} (kA): **4.5 kG** Flattop start/stop (s): _____/_____

I_P (MA): **0.3** Flattop start/stop (s): _____/_____

Configuration: **Double Null**

Outer gap (m): **3 cm**, Inner gap (m): _____

Elongation κ: _____, Triangularity δ: _____

Z position (m): **0.00**

Gas Species: **He**, Injector: **Midplane**

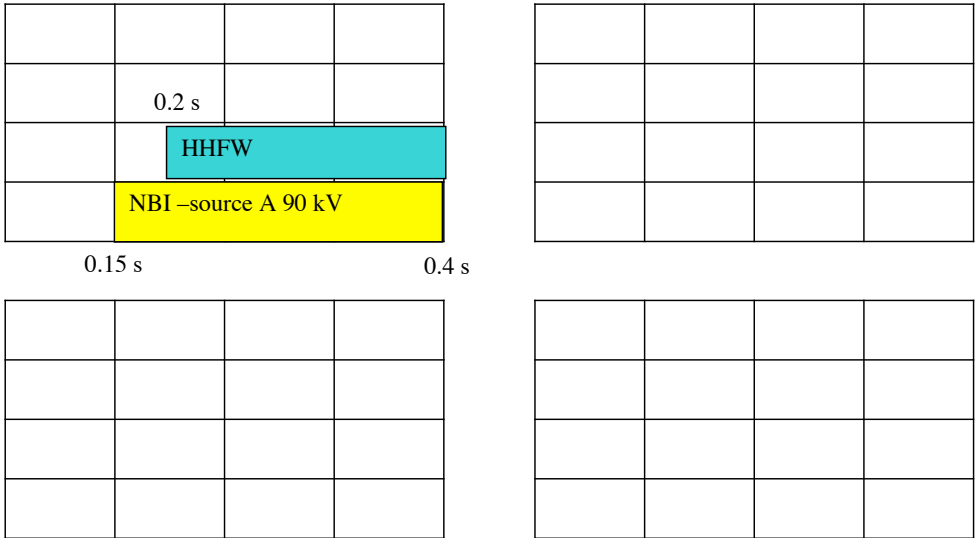
NBI - Species: **D**, Sources:**A**, Voltage (kV): **90**, Duration (s): **.3 s**

ICRF – Power (MW): **>2 MW**, Phasing: **all**, Duration (s): **0.25 s**

CHI: **off**

Either: List previous shot numbers for setup: **117243**

Or: Sketch the desired time profiles, including inner and outer gaps, κ, δ, heating, fuelling, etc. as appropriate. Accurately label the sketch with times and values.



DIAGNOSTIC CHECKLIST

OP-XP-537

Diagnostic	Need	Desire	Instructions
Bolometer - tangential array			
Bolometer array - divertor			
CHERS		x	
Divertor fast camera			
Dust detector			
EBW radiometers			
Edge deposition monitor			
Edge pressure gauges			
Edge rotation spectroscopy	x		Only available by special request of T. Biewer @ MIT
Fast lost ion probes – IFLIP			
Fast lost ion probes – SFLIP			
Filtered 1D cameras			
Filterscopes			
FIReTIP			
Gas puff imaging			
High-k scattering			
Infrared cameras			
Interferometer – 1 mm			
Langmuir probes - PFC tiles			
Langmuir probes - RF antenna			
Magnetics – Diamagnetism			
Magnetics – Flux loops	✓		
Magnetics – Locked modes			
Magnetics – Pickup coils	✓		
Magnetics - Rogowski coils	✓		
Magnetics - RWM sensors			
Mirnov coils – high frequency			
Mirnov coils – poloidal array		x	
Mirnov coils – toroidal array		x	
MSE	x		
Neutral particle analyzer			
Neutron Rate (2 fission, 4 scint)			
Neutron collimator			
Plasma TV		x	
Reciprocating probe			
Reflectometer - FM/CW			
Reflectometer - fixed frequency homodyne			
Reflectometer - homodyne correlation			
Reflectometer - HHFW/SOL		x	
RF antenna camera		x	
RF antenna probe	x		
Solid State NPA			
SPRED			
Thomson scattering - 20 channel	x		
Thomson scattering - 30 channel		x	
Ultrasoft X-ray arrays			
Ultrasoft X-ray arrays - 2 color		x	
Visible bremsstrahlung det.			
Visible spectrometers (VIPS)			
X-ray crystal spectrometer - H			
X-ray crystal spectrometer - V			
X-ray pinhole camera			