

Characterization of edge neutral pressure during inductive and CHI operation and its relationship to the gas fueling efficiency

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Boundary physics session, NSTX Research Forum 2002

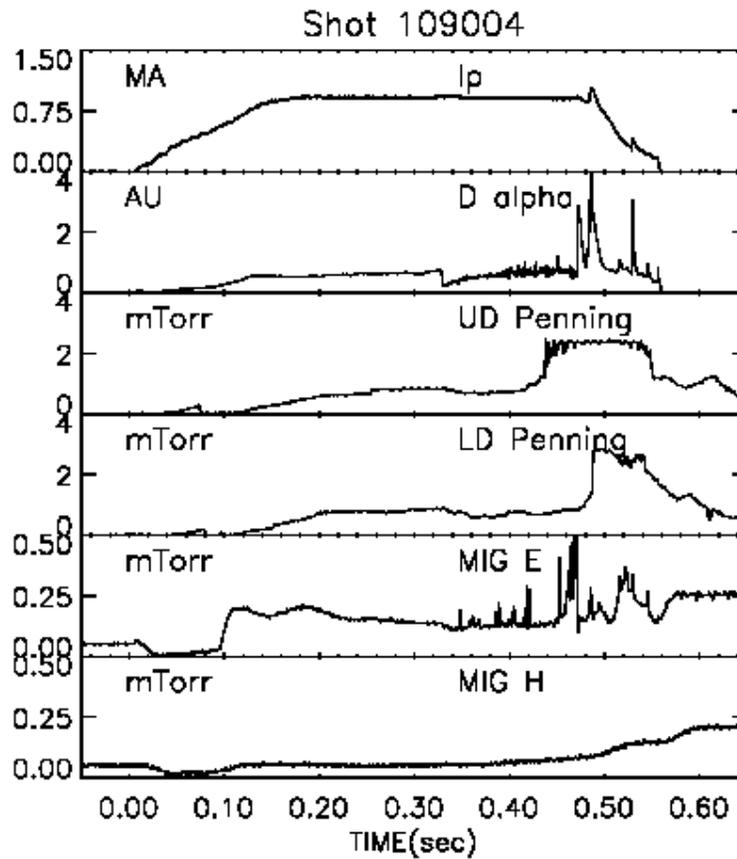
Preliminary measurements of edge pressure during inductive and CHI operation has produced interesting results as shown below.

Such measurements provide useful data related to future lithium wall experiments and possible future CT injection experiment.

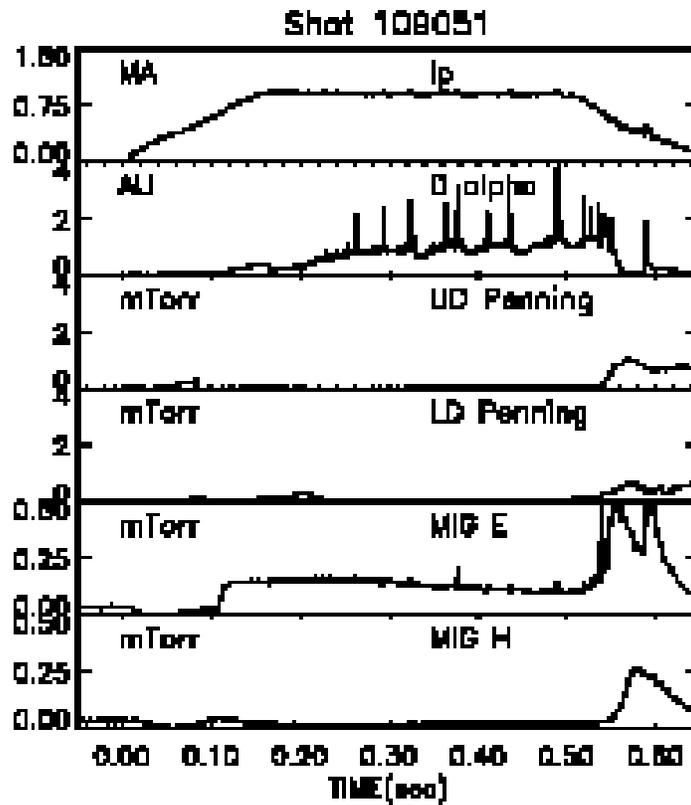
For example, if a lithium module is used, the edge neutral pressure can become very small even under intense gas puffing, so deep fueling becomes quite important.

Knowing how the fueling rate in present plasmas is related to edge neutral pressure will provide information on fueling requirements under conditions where an in-vessel cryo pump is used, and the fueling requirements for an advanced fueling system.

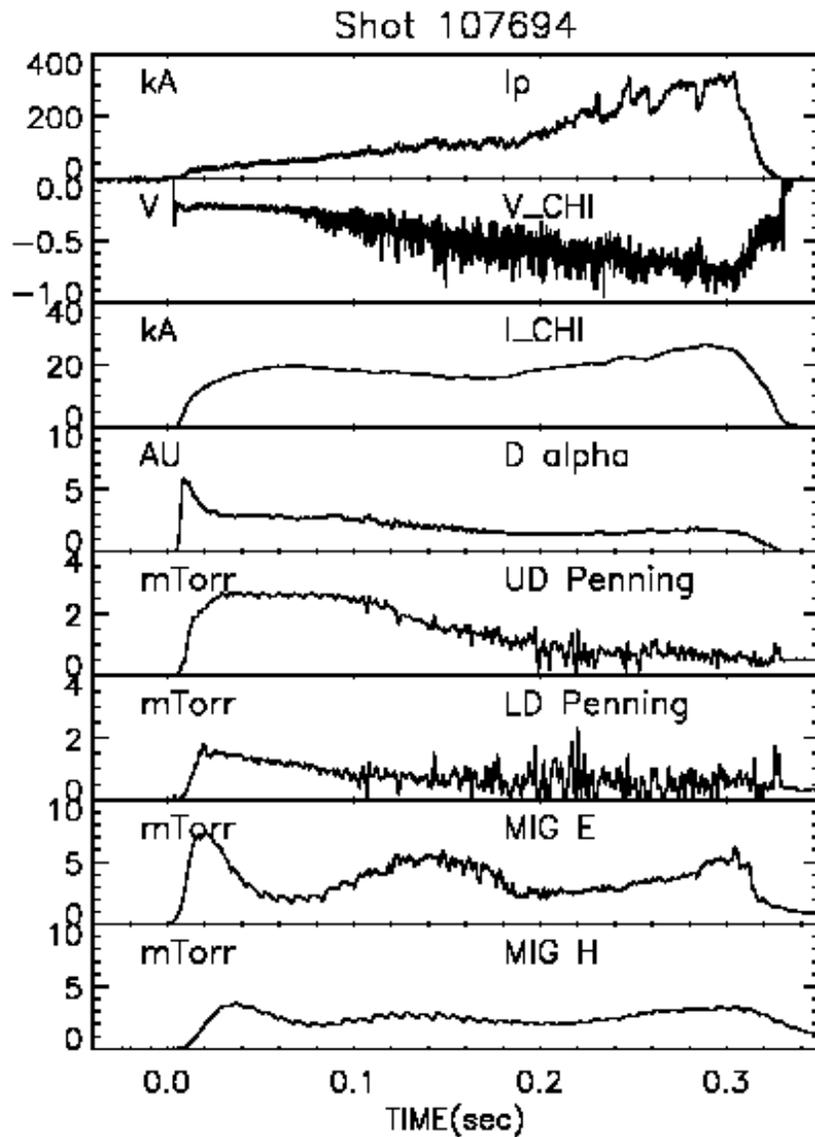
We would like to extend the work done in Fy 02 by conducting a more detailed study using additional neutral pressure gauges. All experiments will be conducted in a piggy-back mode or it will rely on fiducial shots, so no dedicated run time is needed.



900kA, 0.45T, double null fiducial discharge with no current in the PF2 coils. Shown from top to bottom are traces of plasma current, $D\alpha$ line emission, upper divertor Penning gauge, lower divertor Penning gauge, the faster Bay-E micro ion gauge and the Bay-H micro ion gauge.



900kA, 0.45T lower single null fiducial discharge with zero current in the PF1 coils.



CHI produced discharge. The first three traces correspond to the CHI produced toroidal current, the CHI injector voltage and the injected current. The remaining traces show D α line emission, upper divertor pressure, lower divertor pressure, Bay-E mid-plane and Bay-H mid-plane micro ion gauge pressures.