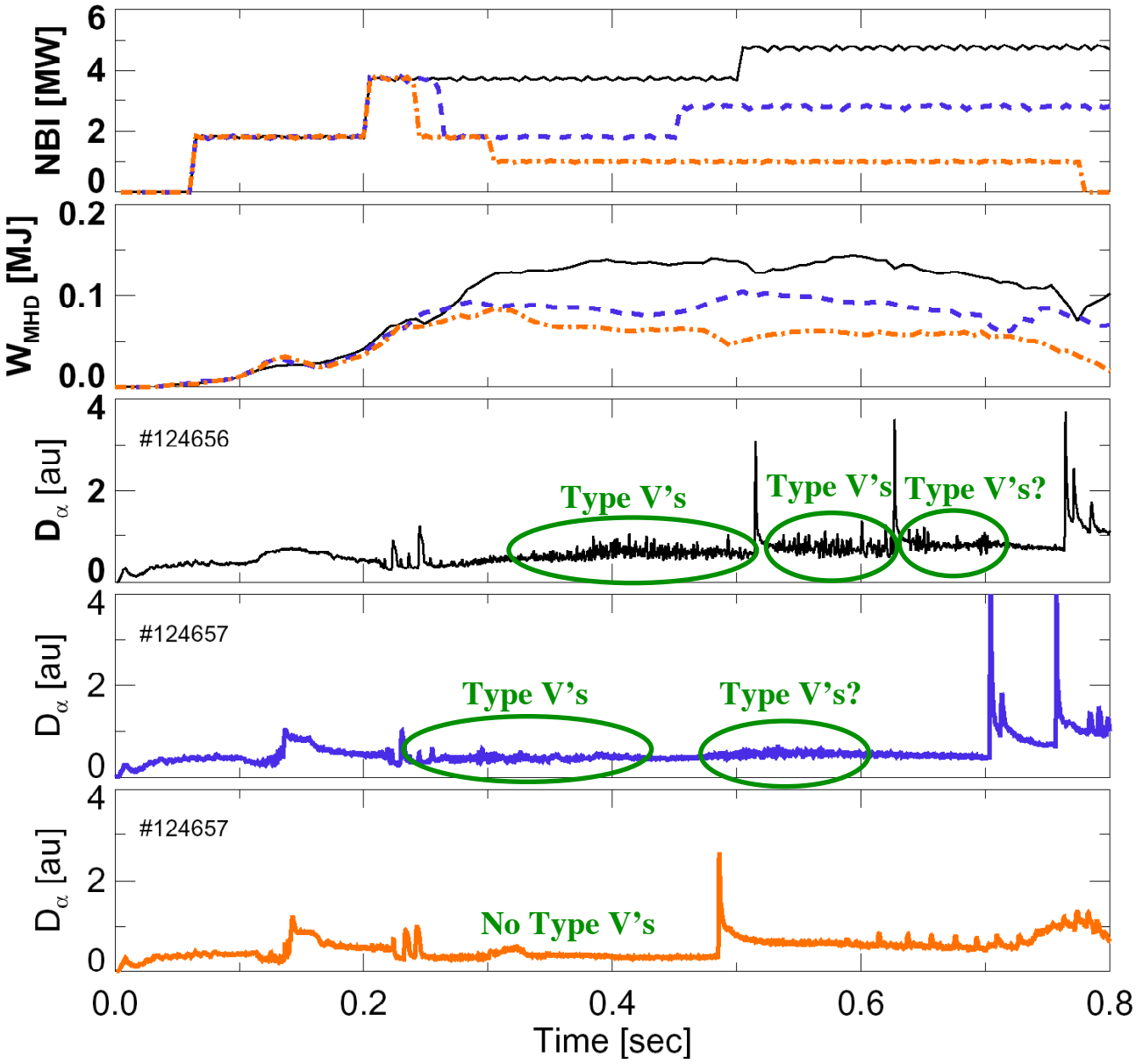
XP 721 – June 5, 2007
(Hubbard, Maingi, Meyer)

1. Repeat #117747 with appropriate rtEFIT changes to get target shape at 200ms; goal is to get a shape like #123644 but with the z-axis shifted downward by about 12 cm. Start first source early at 60-80ms, and add second source at 200-250ms as dictated by H-mode access. (3-5 discharges)
   This was accomplished, e.g. 124641 @ 0.6 MA, 0.45 T; shot had easy H-mode access (drsep=-15mm) and did have Type V ELMs, although q95~9.5, as are lower triangularity (0.51-0.65) and kappa (1.8-1.9).
2. Decrease q95 to 5.5 by increasing I_p to 0.9 MA (from 0.6 MA) and dropping B_t to 0.4 T (from 0.45T) in two steps (3-5 discharges)
   Had trouble at 0.9 MA, 0.45 T e.g. 642-44; 0.75 MA and 0.45T worked (124645) but the key was getting H-mode in the Ip ramp. #124645 had mixed Type I and Type V ELMs. #124645 was not reproducible later in the day; tried 0.75-0.8 MA and 0.4-0.45 T. Don't know why.
3. Vary the β_{ped} value by doing an NBI scan from 1 to 2 NBI sources; we expect ~1 source will yield the target β_{ped} value. Use NBI de-rated source (source C) as needed to obtain finer control over P_{in} and therefore T_{ped}, β_{ped} and ν^*. (3-5 discharges).
   Did this at 0.6 MA, 0.45 T as in step 1, with power levels of 1 MW, 2 MW, 3 MW, 4 MW, and 5 MW. Looks like lower limit of beta-poloidal threshold of about 0.7 in this shape. We got as high as 1.3 in beta-p, and have to look carefully to see when the small ELMs disappeared. Beta scan: 124656-658. Kappa/delta closer than step 1.
4. Increase B_t to 0.5 T to separate ν^* and β_{ped}. (2 discharges)
   Did not get to this.


NBI [MW]
W_{MHD} [MJ]
D_α [au]
#124656
Type V's
Type V's
Type V's?
#124657
Type V's
Type V's?
#124657
No Type V's
Time [sec]