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Dependence of P_{LH} on the Radius of the X-point

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Princeton, NJ
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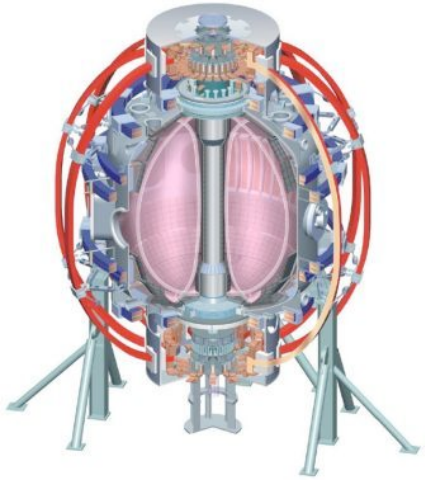
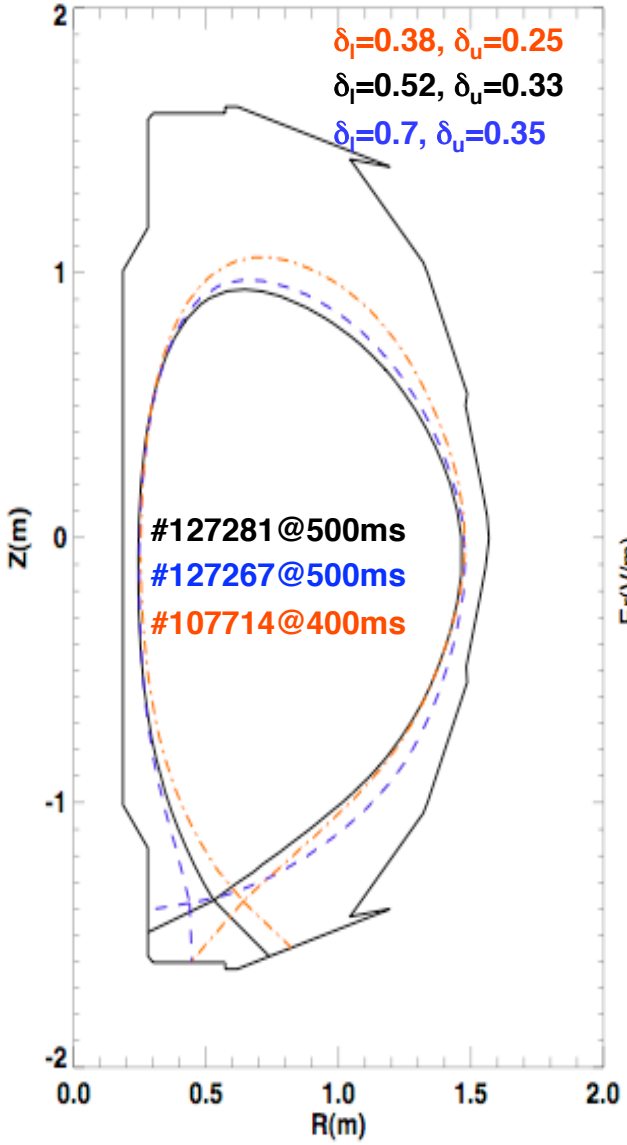


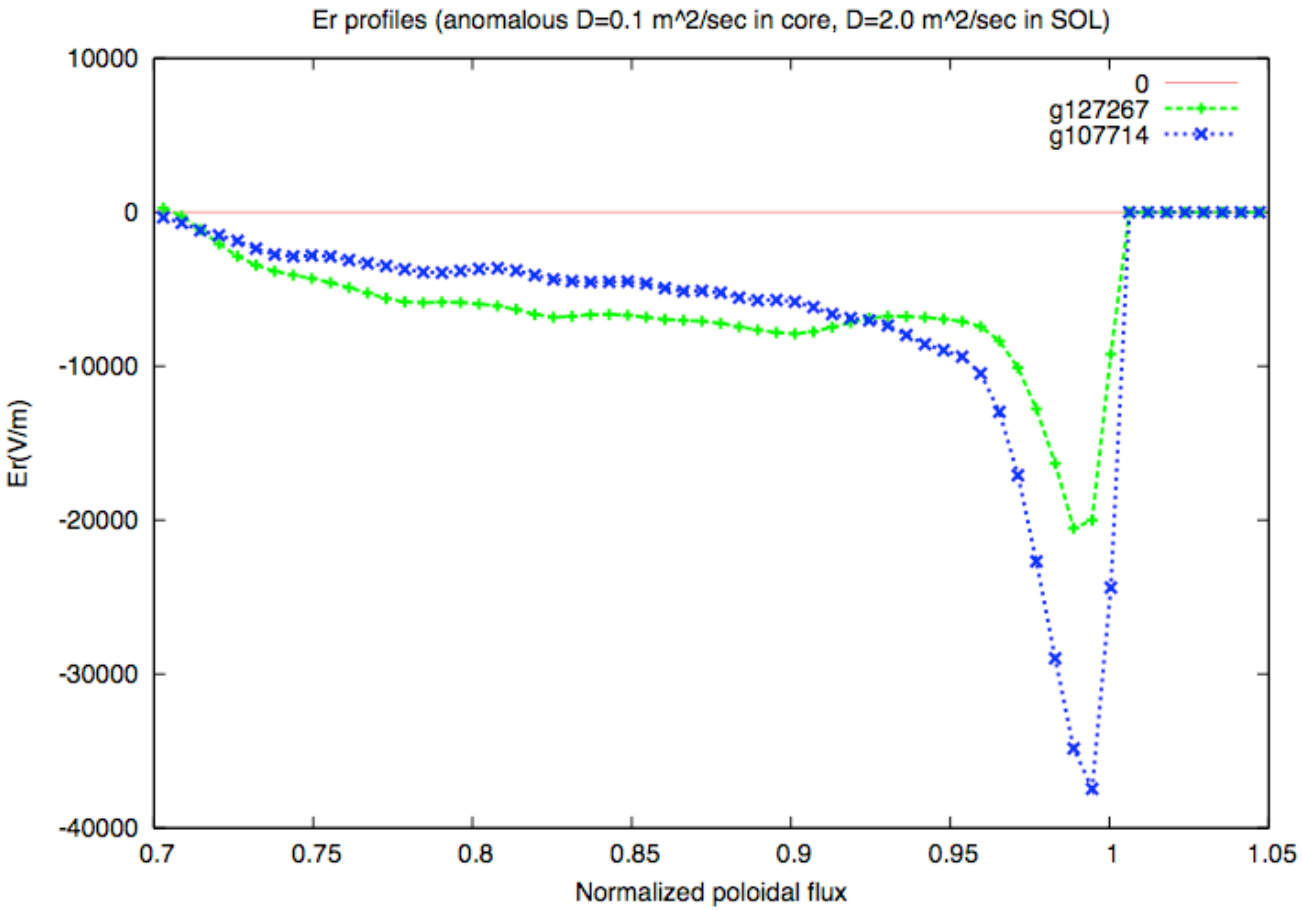
Dependence of P_{LH} on X-point radius

- XP 909 measured P_{LH} vs. X-point radius for 3 shapes
  - XP motivated by XGC calculations that showed larger X-point radii had larger thermal ion X-point loss, leading to larger E_r, E_r'
  - In control room, largest radius X-point ($\delta \sim 0.4$) showed 50% lower P_{NBI} for H–mode access than $\delta \sim 0.55, 0.7$
  - While P_{heat} had same ordering, $P_{loss} = P_{heat} + P_{OH} - dW/dt$ was comparable because of differences in P_{OH} and dW/dt
  - Present results are somewhat clouded by this difference

- Desired: re-run low δ and high δ while running XP differently to get comparable P_{OH} and dW/dt at time of L-H
  - Use same NB timing, and increase P_{NBI} later in high δ discharge to minimize transients
- Can be done in ½ - 1 day

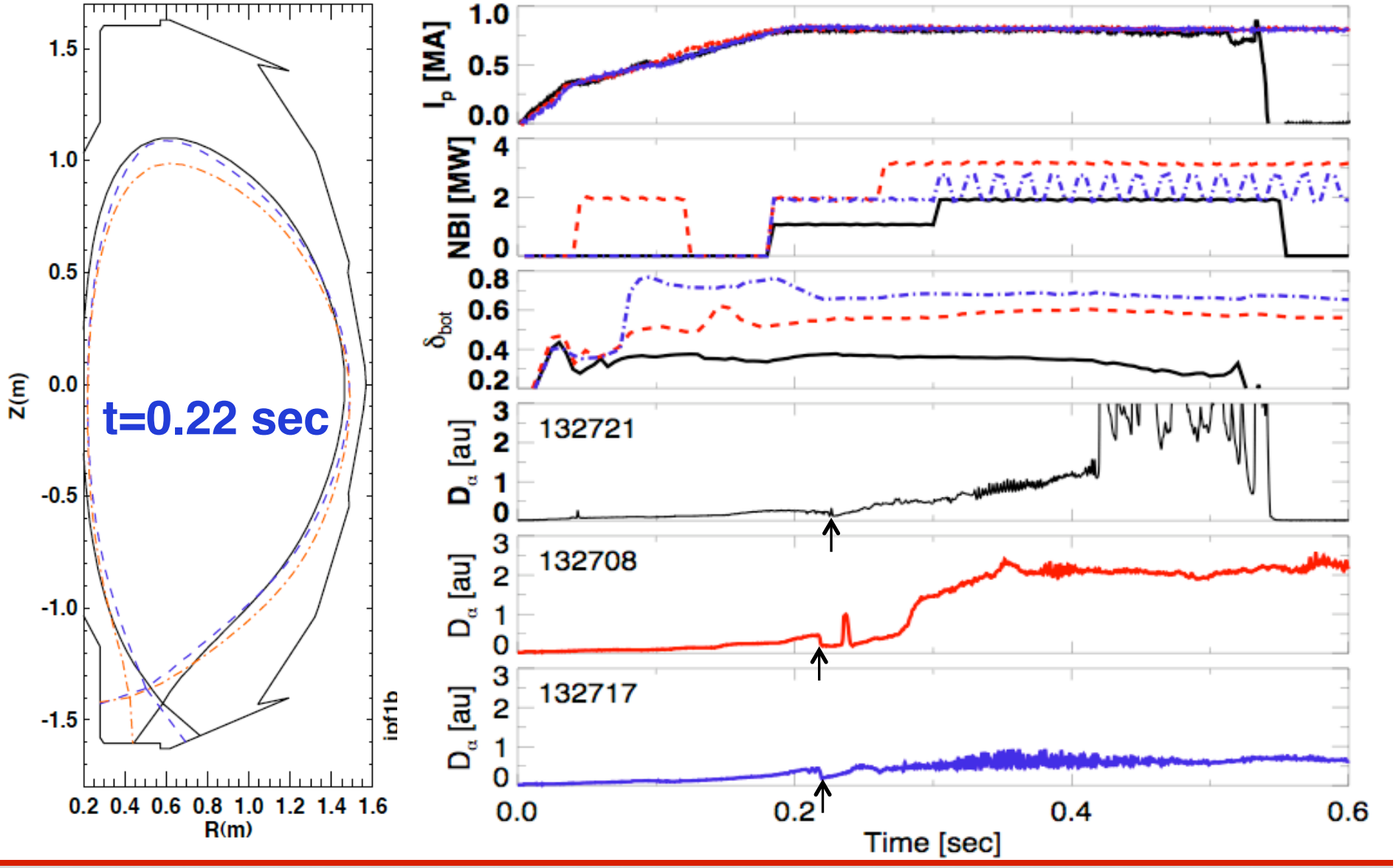
XGC code calculations showed strongest ion loss (and E_r/E_r') near X-point at large Rx – motivated XP909





* Courtesy of C.S. Chang, G-Y. Park

P_{LH} lowest at largest R_x (lowest δ)



P_{heat}^{LH} dependence on δ becomes less ordered with inclusion of P_{OH} and dW/dt to compute P_{loss}