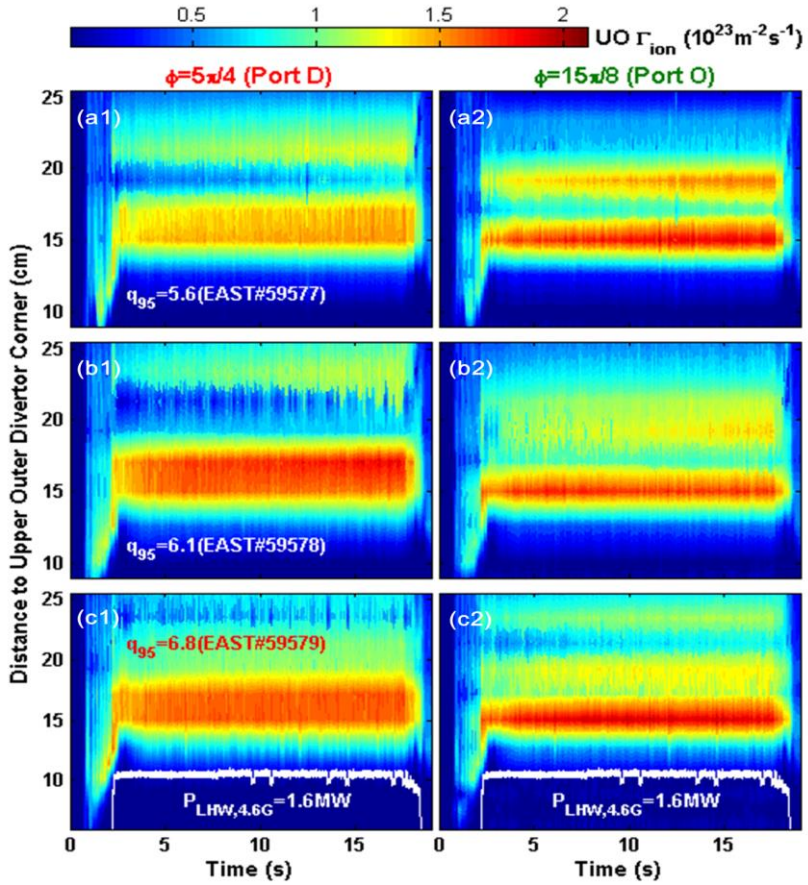
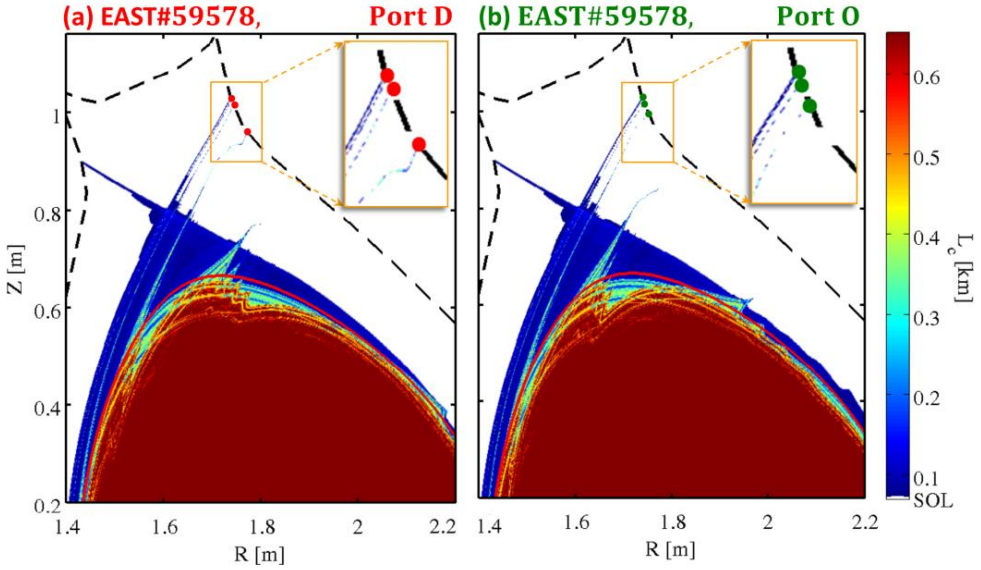
Evidence and Modeling of 3D Divertor Footprint Induced by Lower Hybrid Waves on EAST with Tungsten Divertor Operations (EX/P7-10, L. Wang et al)



2D contour plots of measured particle fluxes on upper outer divertor target in Port D&O for three long-pulse discharges of different q_{95} in quasi-DN configuration. $P_{LHW,\ 4.6GHz}$ ~ 1.6MW.



- LHW can induce edge topology change (n=1) → secondary magnetic flux lobes → 3D footprints [1-2]
- 3D diagnostic in EAST: newly upgraded divertor probe arrays at two toroidal locations with $\Delta\phi$=112.5° [3].
- 3D particle flux footprints induced by LHWs in EAST were systematically studied with W divertor.
  - Vary with q95, 3D footprints in a wide range of q95
  - A threshold power of P_{LHW} ~0.9 MW for 3D footprints
  - In/out strike point splitting depends on Bt direction in USN
  - No ne dependence of footprint pattern in attached conditions
- The experimental and modeling results of different toroidal locations show good agreement.
- Allowing further heat flux control using 3D footprint with regulating divertor conditions.

References

[1] Y. Liang et al., PRL 110, 235002 (2013)
[2] M. Rack et al., NF 54, 064016 (2014)
[3] J. C. Xu, L. Wang* et al., RSI 87, 083514 (2016)