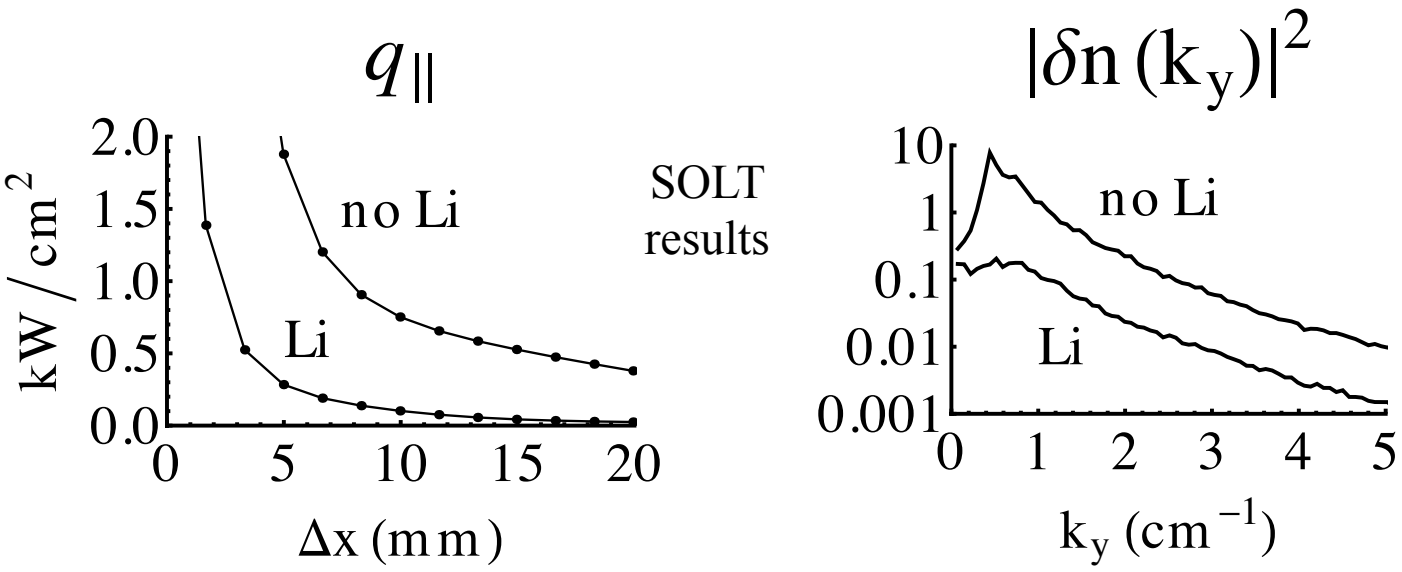
Modelling the Effect of Lithium on SOL Dynamics and the SOL Heat Flux Width Observed in NSTX



- Reduced-Braginskii fluid turbulence (SOLT) simulations in 2D suggest that **drift-interchange turbulence dominates the parallel heat flux ($q_{//}$) in the scrape-off-layer and sets the heat-flux profile width (λ_q) at the outboard midplane** in lithium deposition experiments in NSTX.

- **The SOL heat flux width is larger for the steeper pedestals without lithium** and smaller for the gentler pedestals obtained with lithium deposition, consistent with the experimental trend.

- In the pre-lithium, high-gradient regime, the sheared mean poloidal flow controls the turbulence, and flow damping (charge-exchange with neutrals) increases the turbulent heat flux and λ_q by reducing the shear rate: **flow damping controls λ_q**.