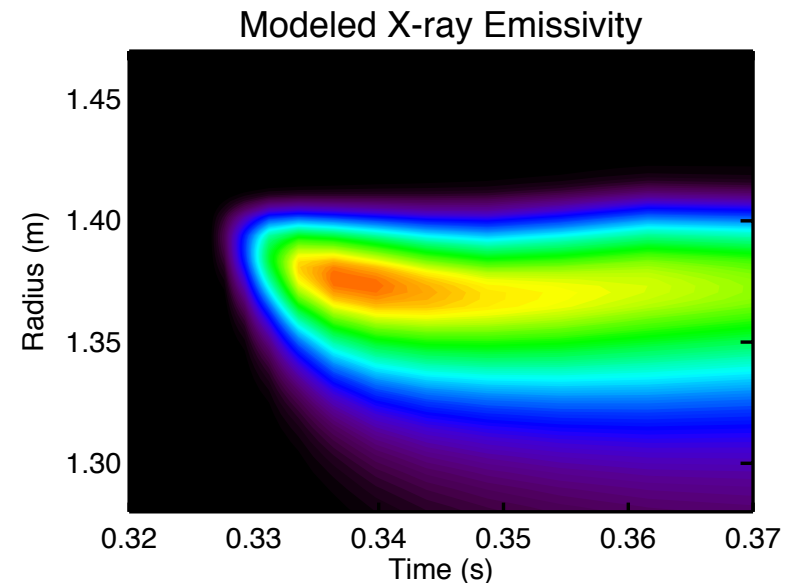
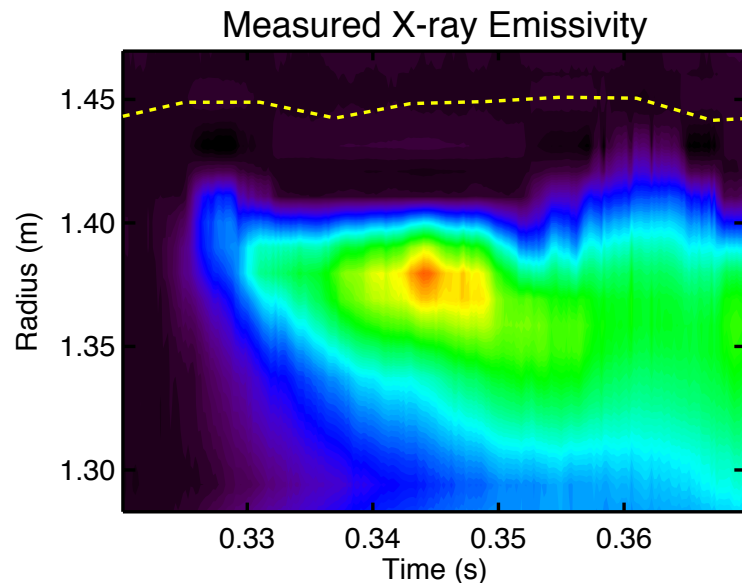


## ME-SXR + STRAHL Can Be Used to Determine Impurity Transport Coefficients in the Plasma Edge

- X-ray emission from impurity gas puffs is used to determine impurity transport coefficients  $D$  and  $v$  in the plasma edge
- The STRAHL impurity transport code, with ADAS atomic rates and emission coefficients, can be used to model emission for a given source, diffusion, and convection, which are varied to find the best fit to the data



## ME-SXR has the Time and Spatial Resolution Required for Perturbative Transport Measurements in Various Conditions

- Time resolution  $> 10$  kHz
- Spatial resolution  $\sim 1$  cm from  $\rho/a \sim 0.6$  to SOL
- Four colors plus bolometer provide some charge-state resolution and place constraints on source terms
- Neon was used previously; additional gasses would provide Z scaling of transport coefficients
  - Lower Z ( $N_2$  or  $CD_4$ ): Are these bright enough in concentrations small enough to prevent perturbation of the bulk plasma?
  - Higher Z (Ar and Kr): These are bright enough, and can act as a proxy for high-Z metal impurities, such as Mo
- Measurements can be made with and without 3D fields, before and after the application of Li, etc. and can be correlated with results from turbulence diagnostics