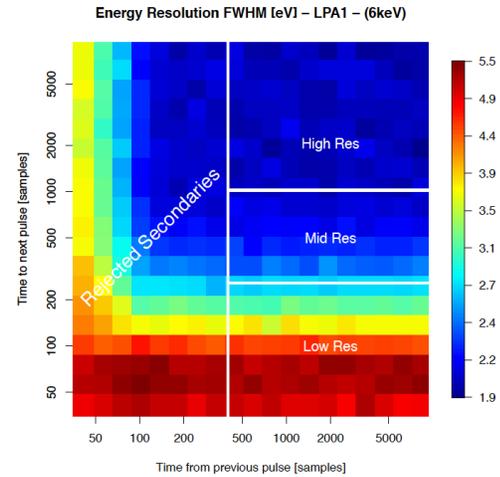
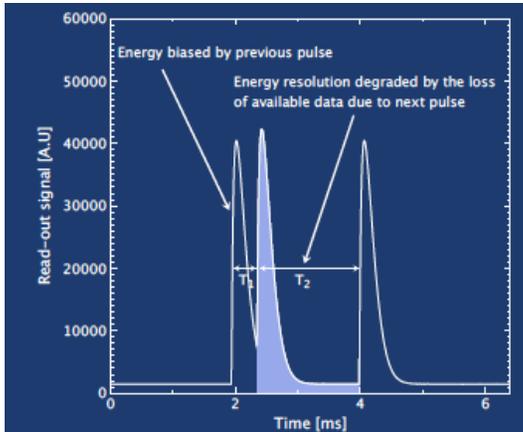


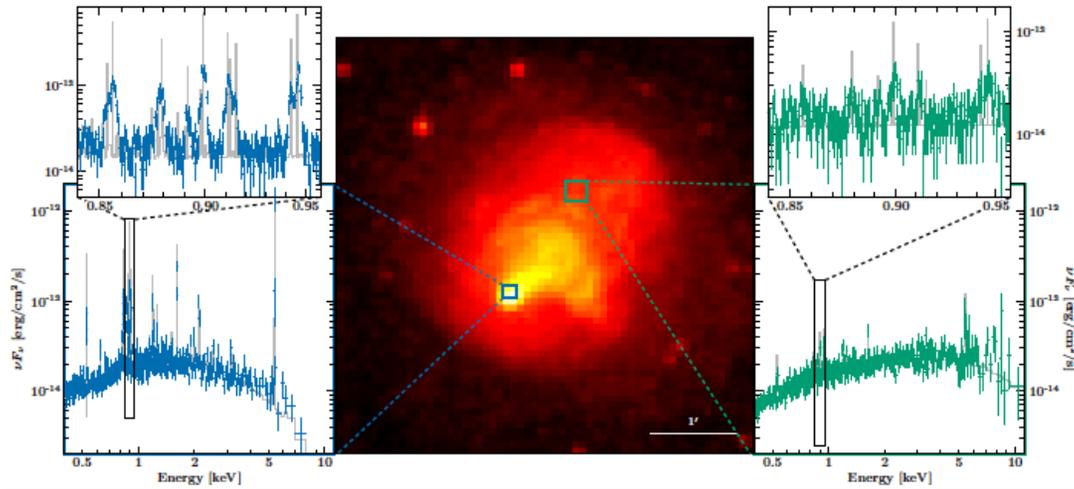
U.S. Simulation Contributions to Athena

- Two main simulations efforts
 - both are “photon shooters” that do not incorporate raytracing at the moment
 - Both use the same input format, “simput”
 - simx at CfA led by Randall Smith, emphasis on rapid simulation for science assessments (e.g., impact of FoV design choices)
 - sixte at Erlangen led by Joern Wilms
 - Emphasizes detector physics
 - athenawfisim, xifupipeline runs fast wfi and x-ifu simulations, including basic detector physics (in both cases uses a grading scheme and response matrices, similar to simx)
 - tessim – much more detailed detector physics to more properly handle bright sources, crosstalk, etc
- Possible US contributions
 - Improved handling of detector physics, particularly for the X-IFU
 - Helping SWG with simulation work, assessing science impacts of design changes
 - In general assisting with software development as needed
 - Would likely lead to involvement in pipeline software effort since pipeline software will be developed / exercised with end-to-end simulations
 - Assessing needed calibration efforts / impacts of systematic error

Examples



Assessment of spectral resolution degradation with increasing count rate, from Athena SIXTE workshop talk by Philippe Peille



Abell 2146 with X-IFU (T. Dauser/E. Pointecouteau)