



MIT Kavli Institute  
for Astrophysics  
and Space Research



# HETG - Status

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Dan Dewey  
dd@space.mit.edu

HETG IPI: Prof. C.R. Canizares  
MIT Kavli Institute

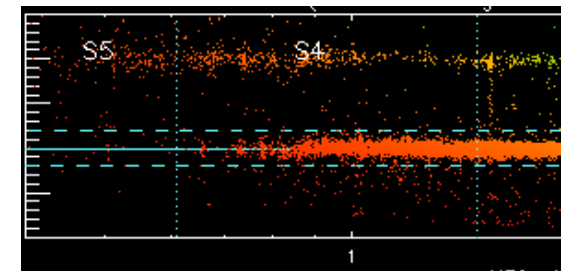
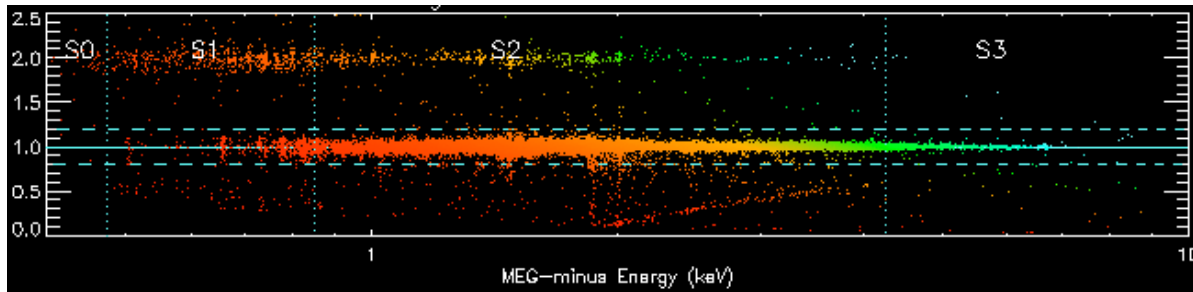
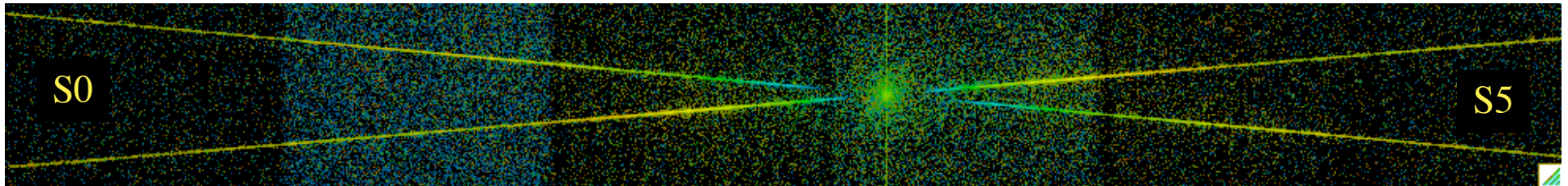


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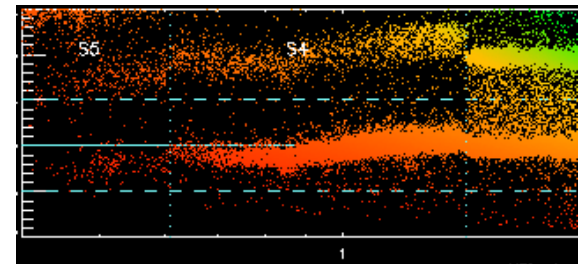
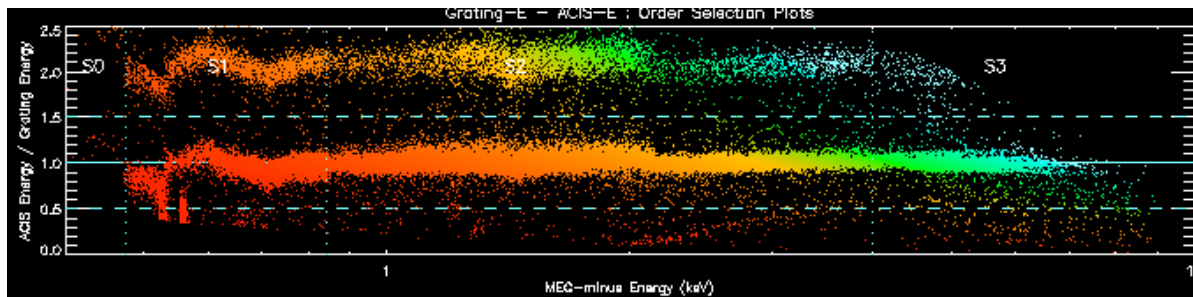
# Ongoing HETG Team Activities Summary

- HETG Performance
  - 34 HETG obsids, Nov.'05 - February 2006; ~ dozen targets, recent DDT
  - Monitoring HRMA FWHM - 3 observations added - looks good.
  - HETG performance is unchanged and superbly nominal.
- HETG Calibration
  - New HEG and MEG efficiencies released in CALDB, Dec.'05.
  - ACIS gains on S0-S5 looking good - improved order sorting.
  - Future work:
    - Absolute effective area; cross-calibration w/XMM, RXTE/PCA
    - Piled-up spectra; Higher orders; CC mode data (Sco X-1)
    - Inclusion of systematic errors in model fitting.

# Recent DDT: RS Oph - Nice order sorting !

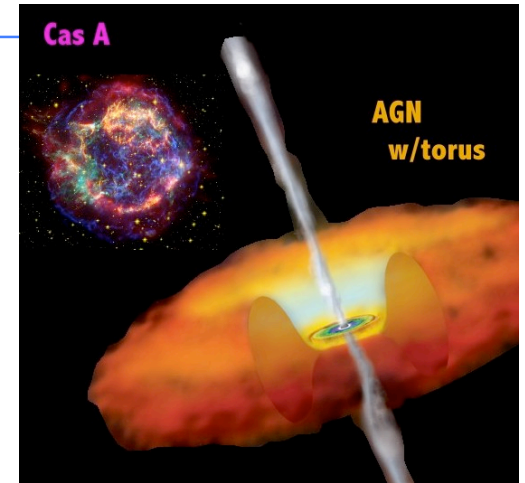


The image above shows "order plots" from the recent observation of RS Oph., obsid 7280. Note how thin and crisp the order bands are, showing very good ACIS energy/gain correction. Below are similar plots from obsid 1102, Cyg X-2, as processed in 1999. That's progress!



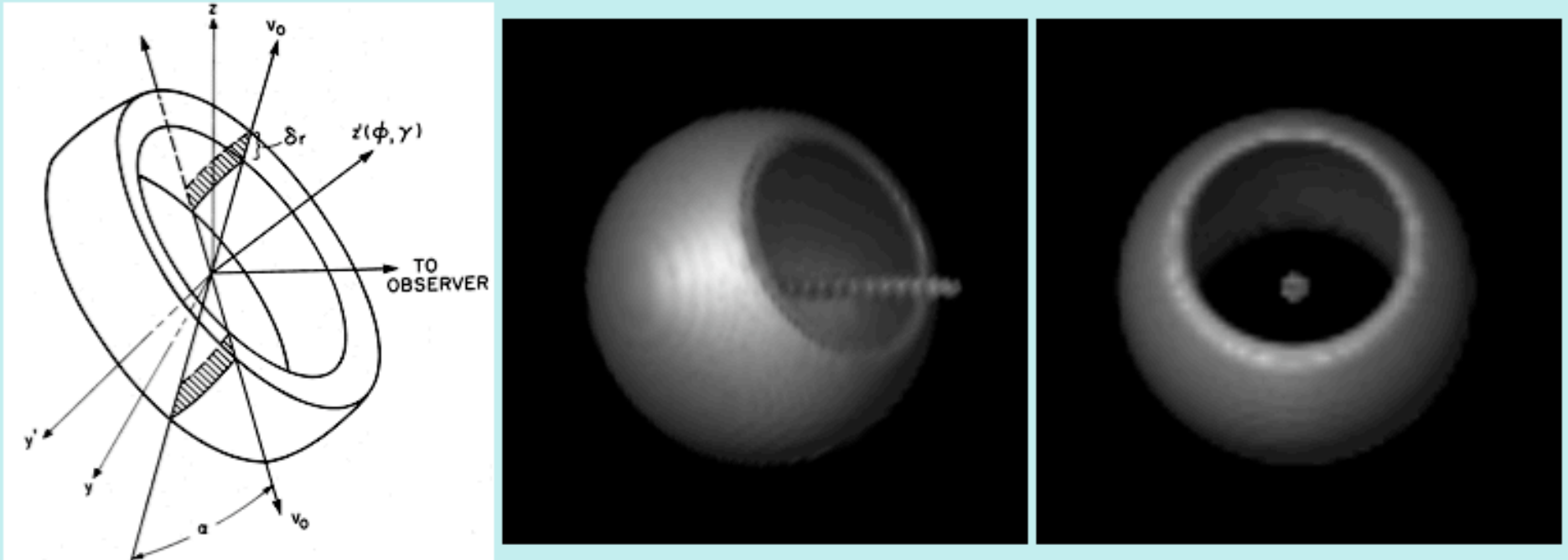
## Ongoing HETG Team Activities, cont.

- Science Support to CXC, etc.
  - HETG Newsletter article
    - HETG AGN archive: <http://hotgas.pha.jhu.edu/>
- GTO Science Program
  - Cycle 6 observations complete: M81\*, SS 433, GX 5-1, PG 0844+349
  - GTO Targets submitted for Cycle 8; the process begins.
  - Post Docs: Selected postdoc to arrive in the Fall.
- HETG Science Examples:
  - Cas A and 3D modeling - prompted by HETG observation & analyses



*Cas A and an AGN;  
shown to scale.*

# Cas A Silicon "Markert Model" (1983)



*Schematic and Renderings of the Markert model geometry.*

*At left, a schematic of the model geometry is shown, from Fig.5 of [Markert et al. 1983](#).*

*The middle and right images show "volview" renderings of the 3D model array at two viewing orientations.*

*The middle's orientation is similar to the schematic's;*

*the dotted line is a "garnish" component indicating the line-of-sight to the observer.*

*The right image is shown as-seen along the line-of-sight by the observer.*

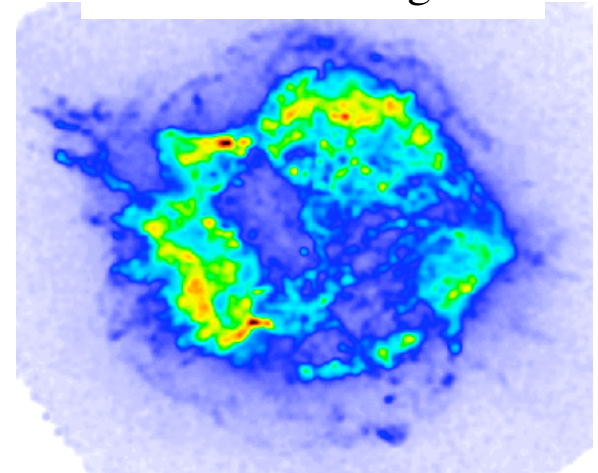


# Cas A: Building a Remnant ...

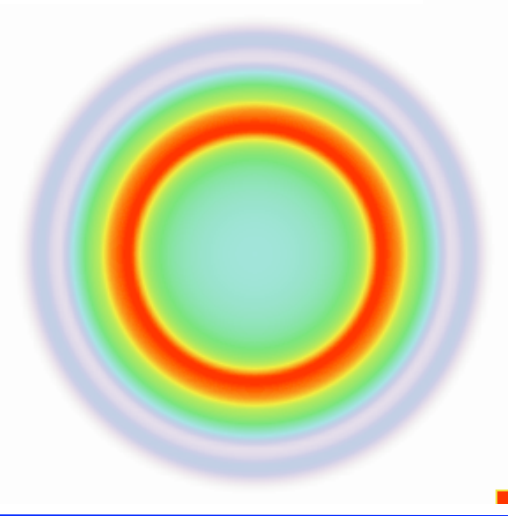
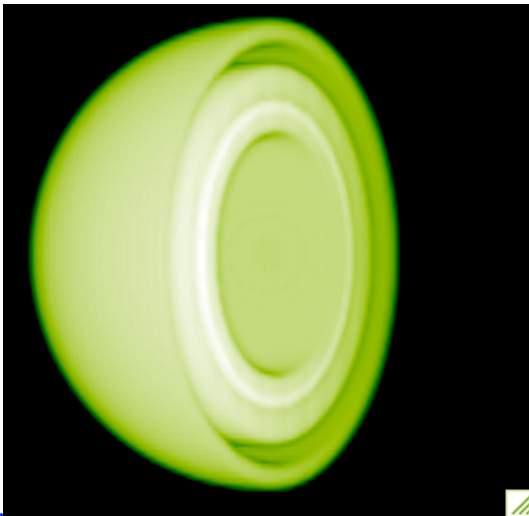
Silicon-dominated knots measured w/HETG:



Silicon-line image



Model of blastwave and ejecta shells:



Continuum image

