CHIANTI Version 11.0 Update

Temperature Response and Filter Ratio

New CHIANTI 11.0 FAQ

- What's new?
 - $_{
 m o}$ The way ionization is calculated for high density plasmas
 - \circ This is mainly targeted at the Transition Region
 - Impacts on Li- and Na-like sequences
- How is the ionization file now calculated?
 - Retained time scales from previous iterations
 - Changed ion rate calculations
 - New inclusion of metastable ion states, improved ion balance, and inclusion of neutral atoms (mainly NE I)
- What does this mean for XRT?
 - Unsurprisingly, not much change
 - This does impact IRIS
 - Lower temperatures have the most divergence

XRT Preliminary Notes

A few preliminary notes:

- This is idealized to 2006 and **not** reflective of current XRT status
 - No straylight or contamination
- Results from CHIANTI 10.1 and CHIANTI 11.0 are included:
 - \circ Single filter ratios
 - Temperature response
 - Filter ratio pairs

XRT Calculations

Flux Calculation Method:

- Create solar spectrum using CHIANTI abundance file and built in ion equilibrium calculation
- Using CHIANTI spectrum and XRT effective area function to calculate flux

Single Filter Ratios:

• Flux results compared to each other

Temperature Response:

- Plot flux results versus logarithmic temperature
 - Plot in logarithmic scale for box axes to show results

Filter Ratio:

- Divide thinner filter flux to thicker filter flux
- Plot new ratio against log temperature

Single Filter Ratios between CHIANTI 10.1 and CHIANTI 11.0



Temperature Response Function Comparison: Al-poly



Temperature Response Comparison: Thin-Be



Temperature Ratio Comparison: Additional AI Filters



Temperature Response Comparison: Additional Be Filters



New Filter Ratios: Thin Filters



New Filter Ratios: Thick Filter







Thank you!

Miscellaneous





