Rethought IACHEC high-resolution methods

***cf* 2012 IACHEC High-Resolution Working Group**

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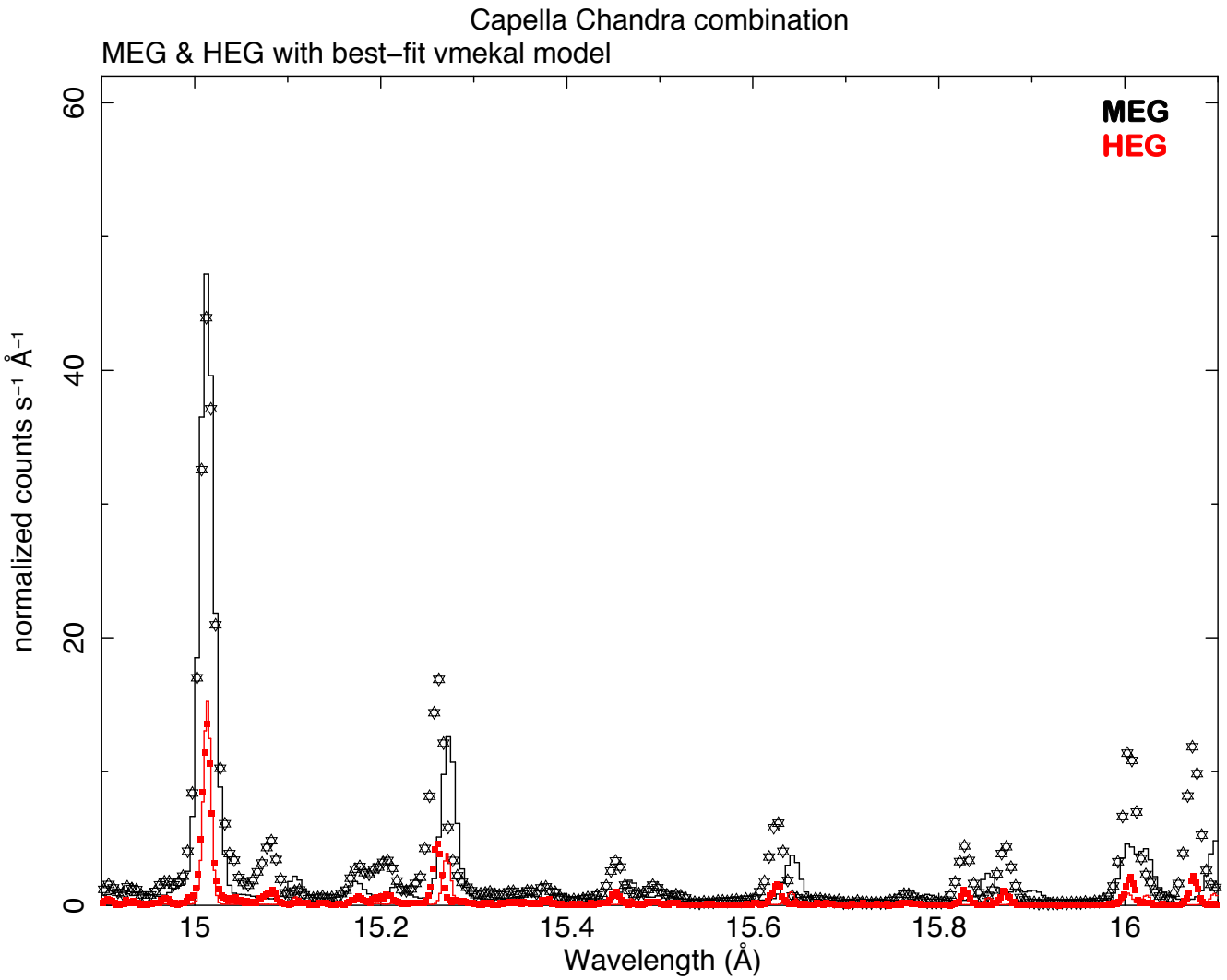
HETG spectra and models of Capella



Deconstructing X-ray models of Capella

- **Tcl [& ISIS] methods** to explore parameter space
  - Tcl
    - Move to Python considered and rejected
    - `DeltaFunction` changed to "thermal" `Gaussian`
      - `IonLine(wavelength,T,A,flux)`
- **Ion-based model protocols to ATOMDB [or SPEX]**
  - ATOMDB work week ✓
  - Electron bound-state transitions by ion
    - **`EM`**
      - **`{ion(w) emissivity upperLevel lowerLevel [flux]}`**
    - DR
    - RRC
    - 2-photon continuum
  - Free-free electron continuum

Deconstructing X-ray models of Capella

- `XSPEC12>set A18LineList [APECXspecLineList APEC HETG EM 1e-18]`

Min emissivity	nIons	EM nLines
10^{-17}	35	359
10^{-18}	51	1484
10^{-19}	70	4511
10^{-20}	76	10082

Deconstructing X-ray models of Capella

- **Actions**
  1. **Adam Foster :** Supply pseudo-continuum for weak-line ensemble e<10^{-18}
  2. **Andy Pollock :** Post XSPEC fit of Capella model v1.0
     - 1484 thermal EM lines
     - Separate DR lines
     - Weak-line ensemble
     - Nominal continuum
  3. **Norbert Schulz** : ISIS fit of model v1.0

New AtomDB model spectra

- **Adam Foster et al.**
  1. **Non-Equilibrium Ionization**
     - Autoionization
       - Inner shell excitation
       - Inner shell ionization
       - Fluorescence
       - Auger breakup
       - Also Kβ and Kγ.
  2. **Charge Exchange**
     - Working XSPEC model from www.atomdb.org/acx
     - Solar wind + cometary, planetary or heliospheric neutrals