The need for a high-resolution working group

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Wavelength scale consolidation

- High-resolution instruments such as the RGS measure λ
- In-flight comparison essential of observed and laboratory⇔theoretical {λ} of Capella et al.
  - laboratory⇔theoretical (Δλ < 1, 10 or 20 mÅ)
    - *e.g.* ATOMDB
      - laboratory
        - solar
        - EBIT
      - theoretical
        - *e.g.* HULLAC
- RGS wavelength scale
  - measured⇔laboratory (Δλ ~ 10mÅ : FWHM ~ 60mÅ : σ_λ ~ 1mÅ)
  - *c.f.* heliocentric-corrected combined *Chandra* HETG spectrum of Capella (Thanks, Dave!)
    - *e.g.* FeXX EBIT{λ} ≠ HETG{λ}
- measured⇒ATOMDB
  - HETG 1 < λ(Å) < 23
  - RGS 6 < λ(Å) < 38
- atomic physics
  - line intensities

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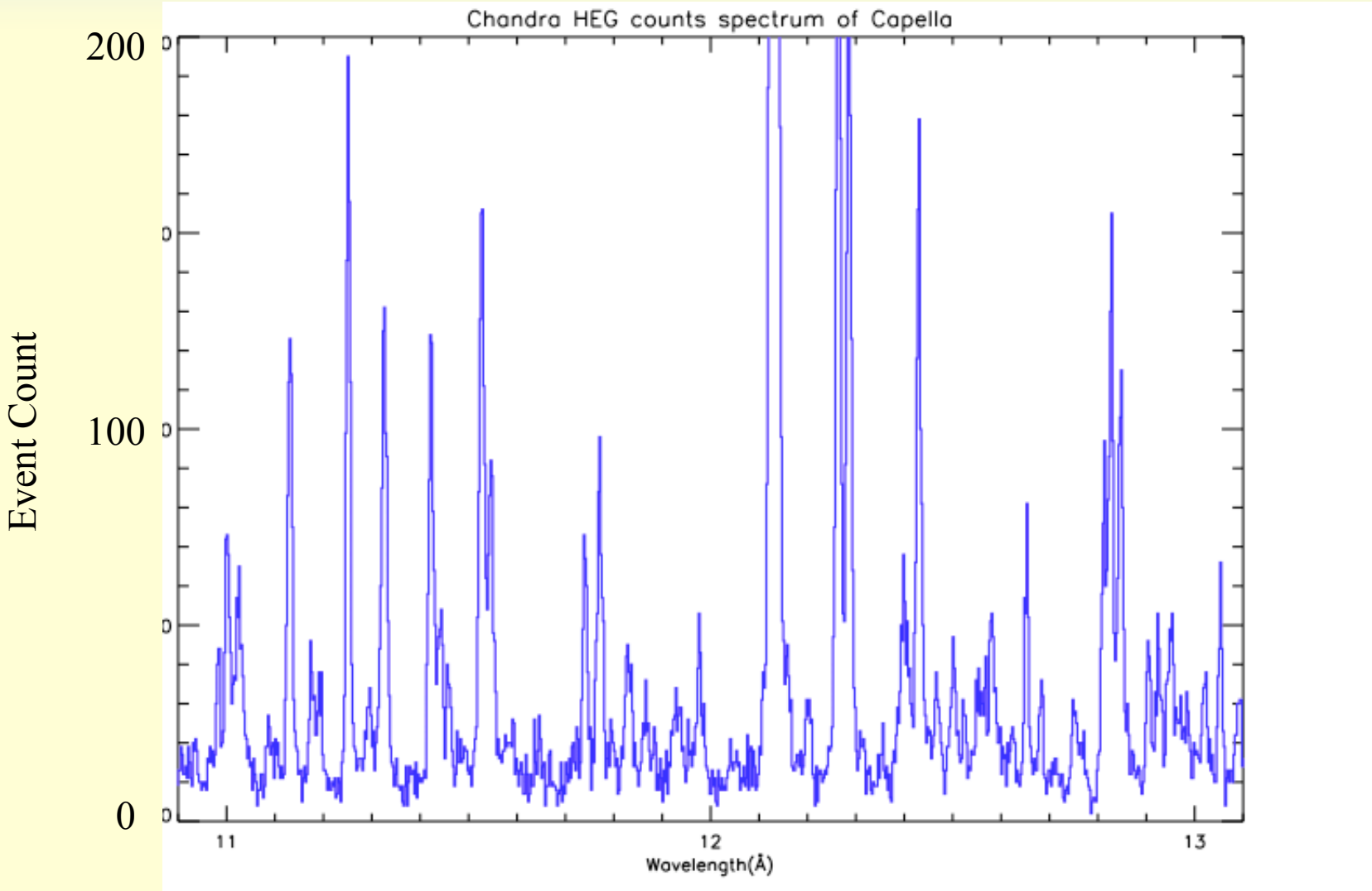
Some of the *Chandra* HEG Capella spectrum



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RGS wavelength scale

- Proper Motion corrections ⇒ spectrum + background + RMF(20,000) in 66 observations
  - Capella
  - AB Dor
  - HR1099
  - Procyon
- Method : model the whole coronal spectrum
  - XSPEC> model Tbabs(bremss+90*SkeltaFunction($\Delta\lambda_1$,v, $\Delta\lambda_2$))
  - XSPEC> stat cstat
- Results
  - geometrical errors persist
    - 1st order vs 2nd order
  - RGS misalignment
    - RGS1 $<\Delta\lambda>$ = +2.44±0.77 mÅ
    - RGS2 $<\Delta\lambda>$ = +6.93±0.84 mÅ
  - individual CCD geometry OK
- Outcome
  - RGS1 and RGS2 alignment $<\Delta\lambda>$ = 0 by CCF under test
    - RGS1 $<\Delta\alpha>$ = +1.2”
    - RGS2 $<\Delta\alpha>$ = +3.0”
  - ISM OVII OK

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