URL: http://cxc.harvard.edu/ciao3.4/threads/gspec.html
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Grating Spectroscopy

If new calibration has been applied to the event file, the grating spectrum should be re−extracted as well. It is then possible to build grating response files (gARF, gRMF) in order to model and fit the data in *Sherpa*.

- Visit the Chandra Grating Analysis Page
- ATOMDB: CIAO's spectroscopic library
- WebGUIDE: Interactive GUIDE for ATOMDB version 1.3
- **General:**
  - Examining Grating Spectra and Regions: PHA2 files
  - Updating dmgroup Syntax for CIAO 3
  - Why topic: ACIS QE Degradation
  - Correcting Responses for ACIS Contamination
  - Measure Grating Dispersion Distance
    Uses: the `tg_scale_reg` S−Lang script
  - Create an Order−Sorting Image
    Uses: the `tg_osort_img` S−Lang script
  - Create a Color Spectrum
- **Problems with the Zero Order:**
  - Correcting a Misplaced Zero−order Source Position
  - Source Position for Grating Data with a Piled or Blocked Zero Order
- **HETG/ACIS:**
  - Obtain Grating Spectra from HETG/ACIS−S Data
  - Obtain Grating Spectra for Multiple Sources − ACIS
  - Create Grating RMFs for ACIS−S Observations
  - Compute HETG/ACIS−S Grating ARFs
    Uses: the `fullgarf` script
  - Grouping a Grating Spectrum
- **LETG/ACIS:**
  - Obtain Grating Spectra from LETG/ACIS Data
  - Obtain Grating Spectra for Multiple Sources − ACIS
  - Create Grating RMFs for ACIS−S Observations
  - Compute LETG/ACIS−S Grating ARFs
    Uses: the `fullgarf` script
  - Grouping a Grating Spectrum
- **LETG/HRC−S:**
  - Obtain Grating Spectra from LETG/HRC−S Data
  - Obtain Grating Spectra for Multiple Sources − HRC
  - Creating Higher−order Responses for HRC−S/LETG Spectra
  - Create Grating RMFs for HRC Observations
  - Compute LETG/HRC−S Grating ARFs

- Grouping a Grating Spectrum
- *Sherpa*: Fitting Multiple Orders of HRC−S/LETG Data

- **LETG/HRC−I:**

- Obtain Grating Spectra from LETG/HRC−I Data
- Obtain Grating Spectra for Multiple Sources − HRC
- Create Grating RMFs for HRC Observations
- Compute LETG/HRC−I Grating ARFs
- Grouping a Grating Spectrum

- **Combining Spectra & Fitting:**

- Extract Coadded and Grouped Nth−Order Source & Background Spectra and ARFs
  Uses: the `add_grating_orders` script
- Add Grating Spectra and Average ARFs
  Uses: the `add_grating_spectra` script
- *Sherpa*: Fitting Grating Data
- Create PHA Background File for Use in XSPEC
  Uses: the `tg_bkg` script
- *Sherpa*: GUIDE: Fitting and Identifying Spectral Lines

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