



## 2nd Chandra/CIAO Workshop Hands–on Session

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For the second Chandra/CIAO workshop, we have modified the format of the hands–on session. Each day will begin with instructional talks and the afternoon will be reserved for hands–on practice.

### Practical Information:

- There are 15 workstations called "DEMO1, DEMO2, ... DEMO15." With 30 people registered for the workshop, two people need to work at each computer.
- Users should log–in as "cxcguest1", "cxcguest2", etc. on the corresponding machines. The passwords will be revealed on Monday.
- All the "cxcguest" accounts are already setup to run CIAO2.1. On every window where you expect to run CIAO, you should simply type "ciao". For example:

```
cxcguest-1: ciao
CIAO configuration is complete...
  version   : CIAO 2.1 Wednesday, February 28, 2001
  bin dir   : /soft/ciao/bin
```

- Some useful checks:

```
cxcguest-2: ciao -v
This script sets the user's CIAO environment to utilize:
  version   : CIAO 2.1 Wednesday, February 28, 2001
  bin dir   : /soft/ciao/bin
The current environment is already configured for:
  version   : CIAO 2.1 Wednesday, February 28, 2001
  bin dir   : /soft/ciao/bin

cxcguest-3: echo $PFILES
/home/cxcguest/cxcds_param:/soft/ciao/param

cxcguest-4: echo $CALDB
/soft/ciao/CALDB

cxcguest-5: echo $ATOMDB
/soft/ciao/ATOMDB
```

- The workspace is in  
/data/ciao\_demo/  
15 subdirectories have been created called cxcguest1 through cxcguest15; please use the one relative to your machine.
- Chandra data useful for the analysis can be found in  
/data/ciao\_demo/threads
- All the CIAO scripts are already downloaded in  
/soft/ciao/bin  
and can be called from the command line.
- If you need to access CALDB files, they are in  
/soft/ciao/CALDB, which is linked to /data/CALDB/
- If you need to access ATOMDB files, they are in

## Suggested Analysis Sessions:

All the threads listed below can be found from the CIAO 2.1 Threads page.

- **Beginners:**
  - Introduction To the Data Model
  - Introduction to Firstlook
  - Introduction To Prism
  - Data Filtering
  - Getting Started With Sherpa
  - Introducing Sherpa: ASCII Data & Errors and Single–Component Source Models
- **Imaging/Spectroscopy:**
  - Create True Color Image
  - Extract ACIS Spectra and Make RMFs and ARFs
  - Compute an Exposure Map
  - Reprojecting Coordinates of a Solar System Object
- **Grating Analysis:**
  - Examining PHA2 Files
  - Obtain Grating Spectra
  - Compute Grating ARFs
  - Extract Coadded and Grouped Nth–Order Source & Background Spectra and ARFs
  - Fitting Grating Data
  - GUIDE: Fitting and Identifying Spectral Lines
  - Fitting Spectral Data: FITS Data & Responses and Multi–Component Source Models
- **Extended Source Analysis:**
  - Create True Color Image
  - Obtain and Fit a Radial Profile
  - Compute an Exposure Map
  - Create a PSF
- **Source Detection:**
  - Compute an Exposure Map
  - Detecting Sources in Imaging Observations
  - Estimating Source Counts in Imaging Observations