XSPEC - Part I: X-ray spectroscopy

Tasks:

1) Investigate two unknown X-ray spectra and find out which is Type-1 and which is Type-2 AGN:

Spectrum 1: z = 0.008, Galactic column density $nH = 3.6e20 \text{ cm}^{-2}$ Spectrum 2: z = 0.015, Galactic column density $nH = 5.7e20 \text{ cm}^{-2}$

Cross the line between the corresponding AGN spectrum and type:

AGN spectrum 1	Seyfert-1 AGN
AGN spectrum 2	Seyfert-2 AGN

- 2) Fit the spectra with a simple absorbed power-law model and measure the power-law slope and the level of absorption. Add a reflection model (line "gauss" and/or reflection continuum "pexrav") to your spectral fit and check for the presence of reflection features. If present measure the reflection fraction or the equivalent width of the iron line.
- 3) Calculate uncertainty of the interesting parameters and plot a statistical contour (in 1 or 2-D parameter space).
- 4) Advanced exercise: in Spectrum 1 load a spectrum from a different time interval (in folder "Additional") and compare the two spectra from different time intervals. Which spectrum was caught in high/low state and what changed in the spectrum?