

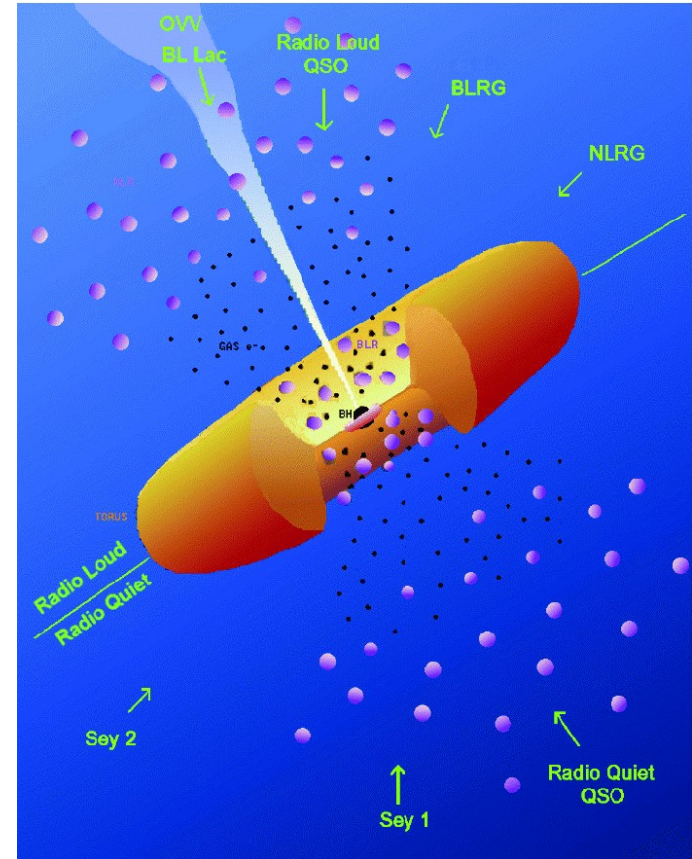
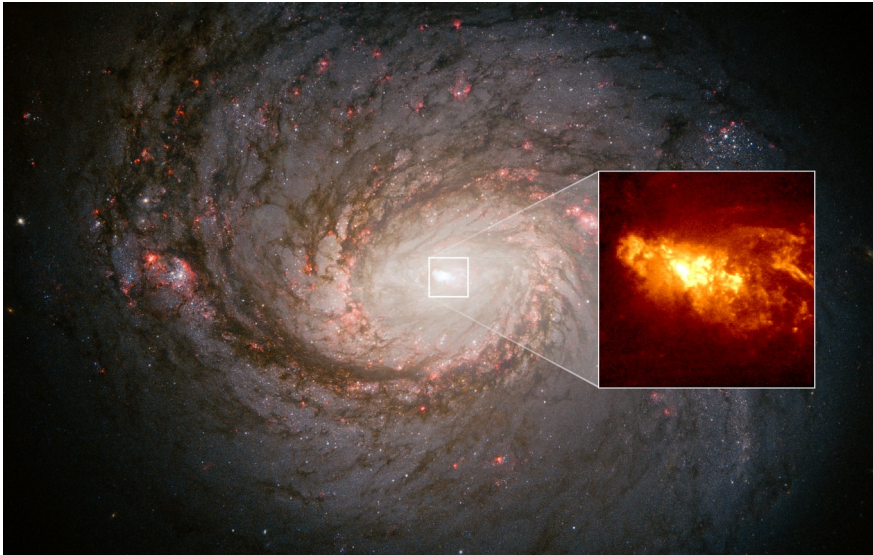
Which elements....

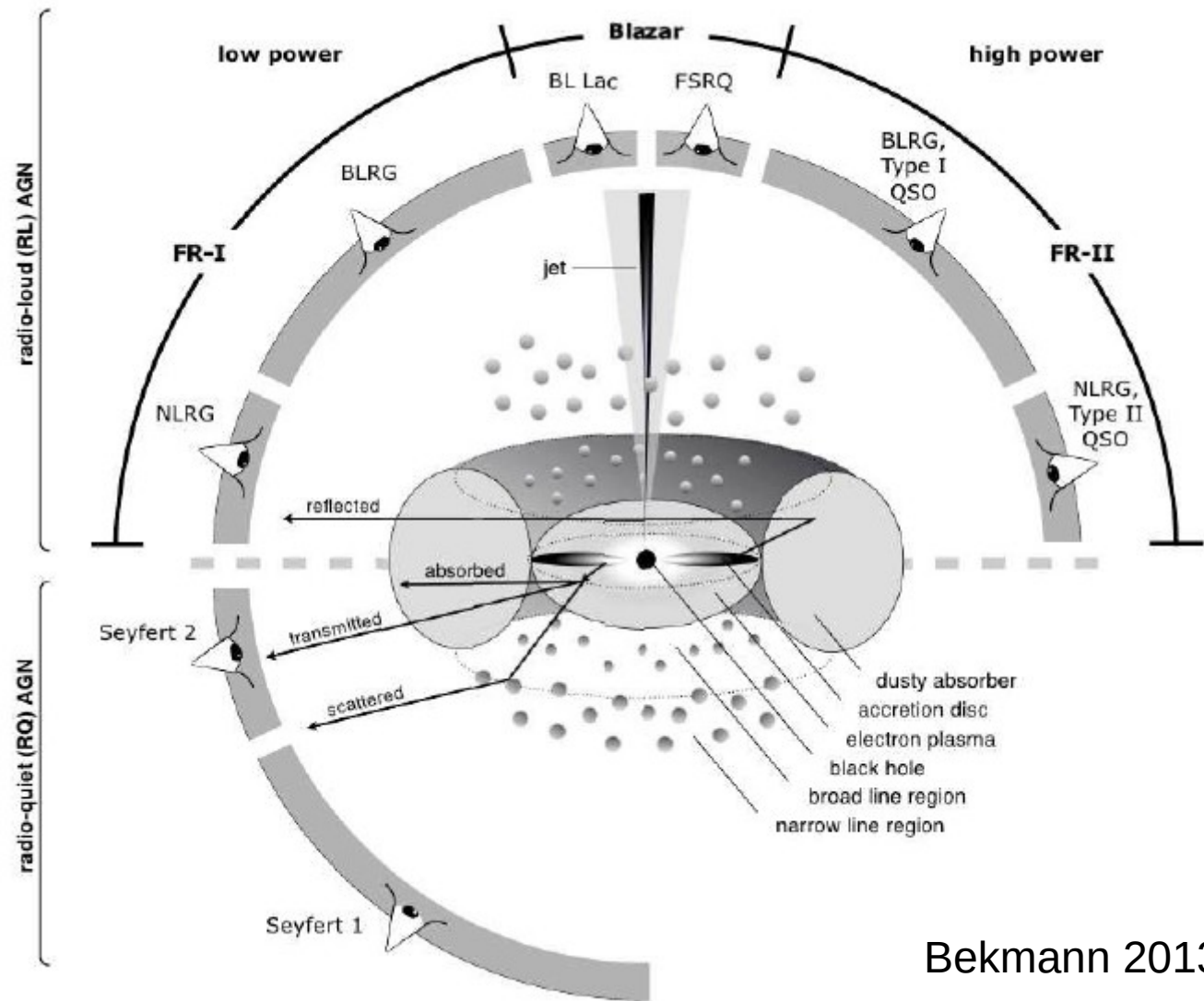
The high energy emission line spectrum of NGC 1068

Matt et al. 2004 (A&A, 414, 155M)

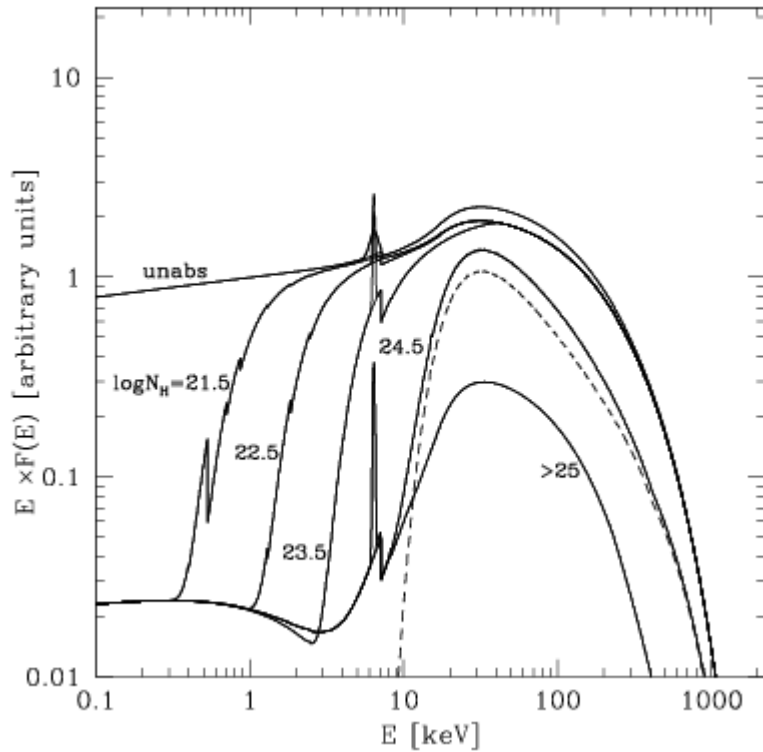
$M_{\text{SMBH}} \sim 1.7 \times 10^7 M_{\text{sun}}$ (Gallimore, J. F., & Impellizzeri, C. M. V. (2023))

$D \sim 14.4$ Mpc Bland-Hawthorn et al. (1997)

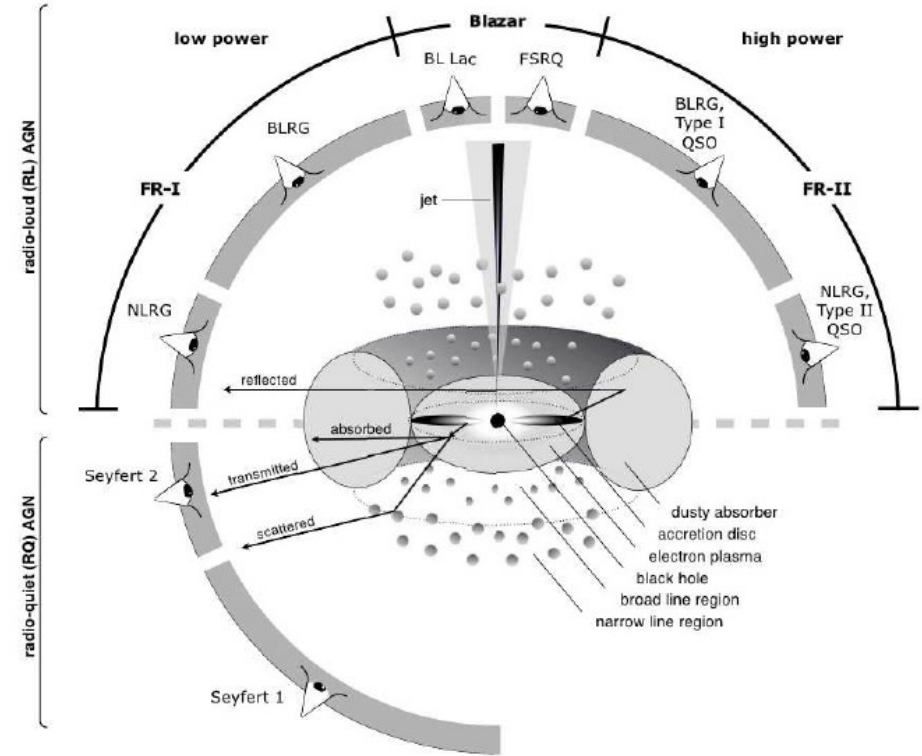




What are we going to observe?



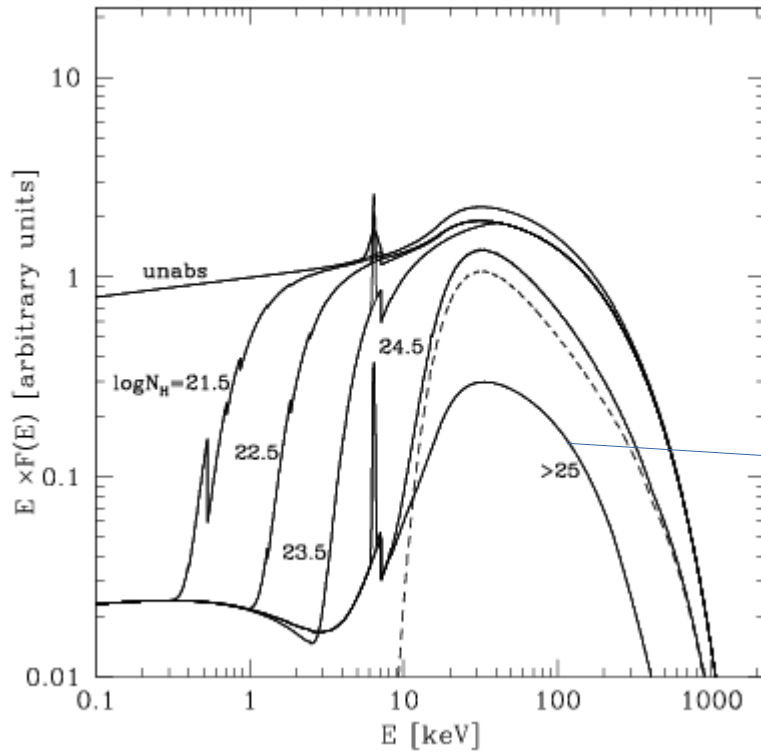
Gilli et al. 2001



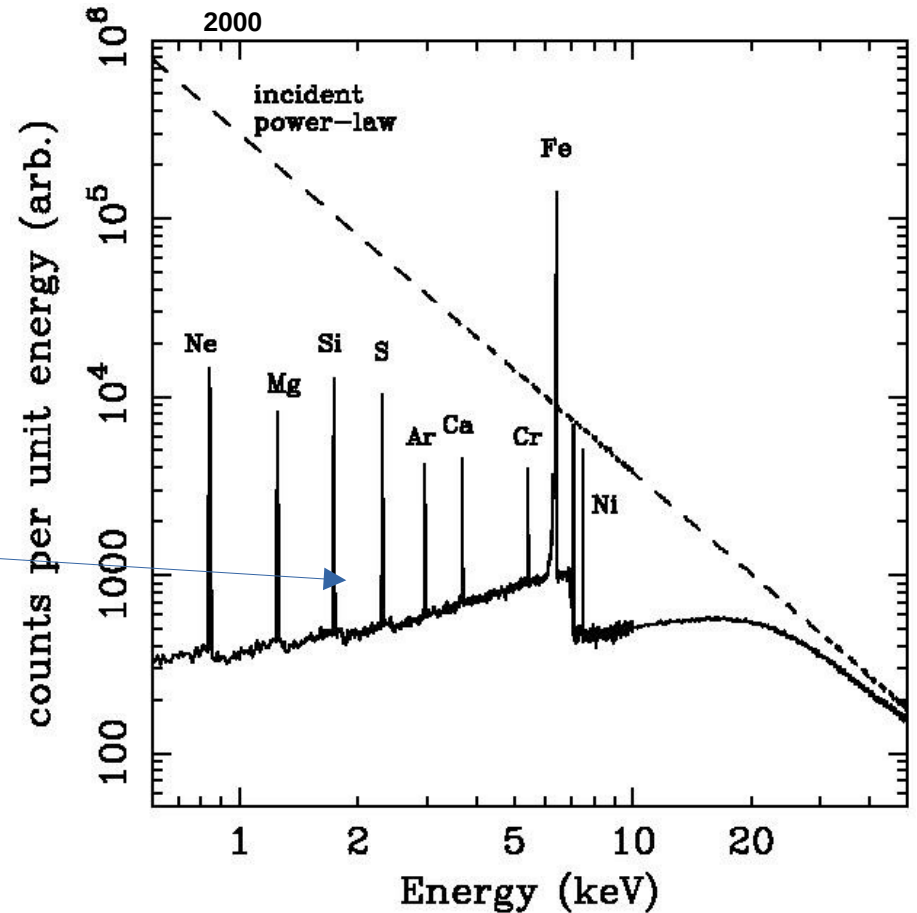
Bekmann 2013

What are we going to observe?

A.C. Fabian 1, K. Iwasawa 1, C.S. Reynolds 2, 3, A.J. Young 4

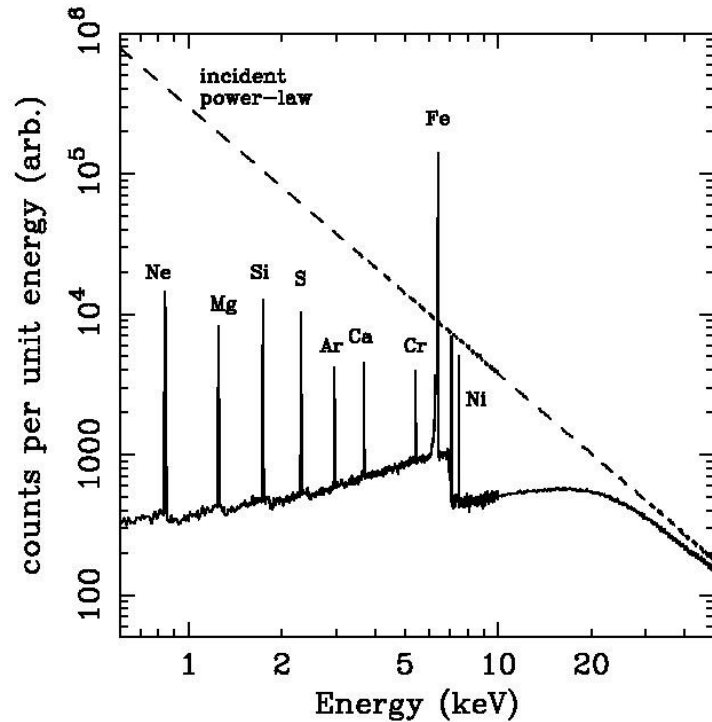


Gilli et al. 2001



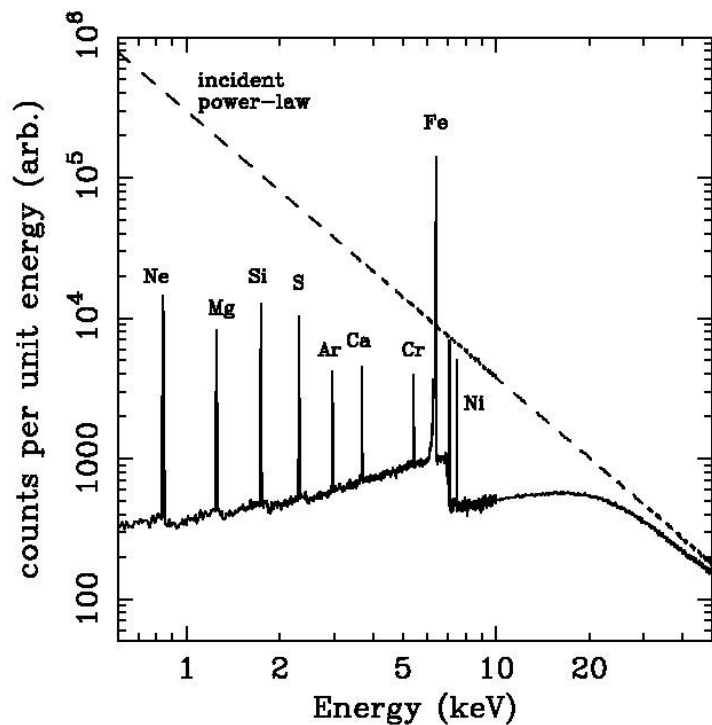
Spectra in the 2-10 keV band

→ XMM-Newton EPIC-pn



Spectra in the 2-10 keV band

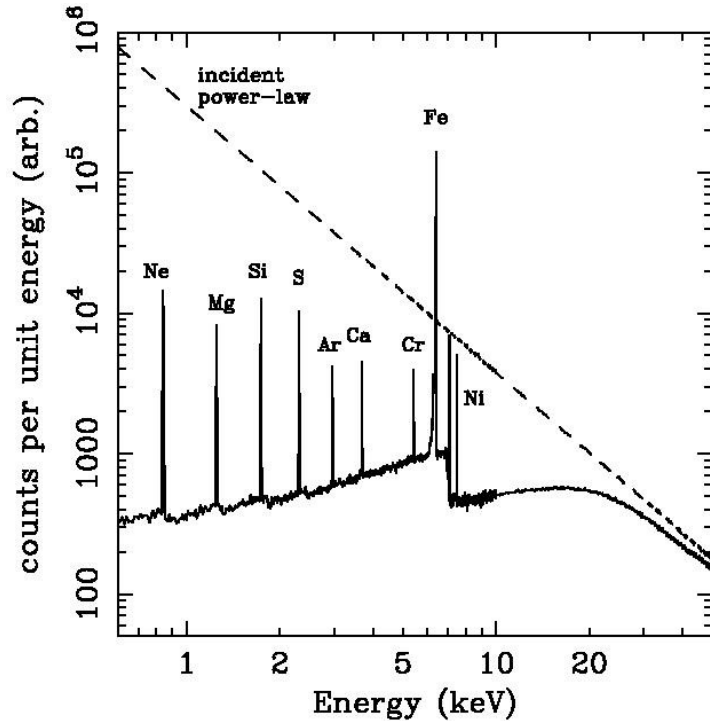
→ XMM-Newton EPIC-pn



- 1) Data reduction (extraction regions and soft-pn cleaning)
 - 2) model the continuum
 - 3) identify the different lines
- **if you have time....**
- 4) download the data of another XMM-Newton observation of NGC 1068 and re-do everything....

Spectra in the 2-10 keV band

→ XMM-Newton EPIC-pn

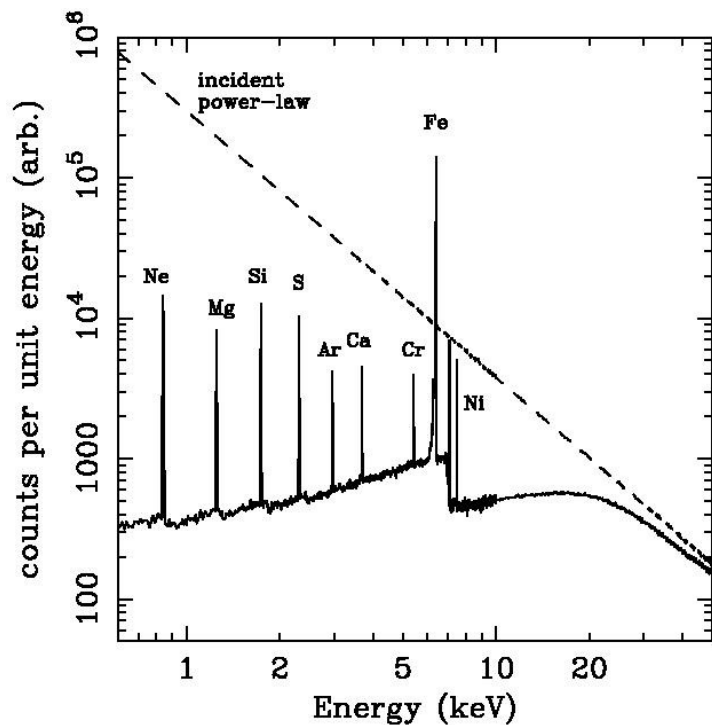


3) identify the different lines:

- 3-1) define the statistical strength of each single feature!
- 3-2) define the energy centroid..... with errors
- 3-3) define the physical strength (EW) with errors
- 3-4) define the possible broadening (with errors)
- 3-5) check with the expectations!
- 3-6) next feature!

Spectra in the 2-10 keV band

→ XMM-Newton EPIC-pn



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