# Uncovering AGN's cloud with CLOUDY
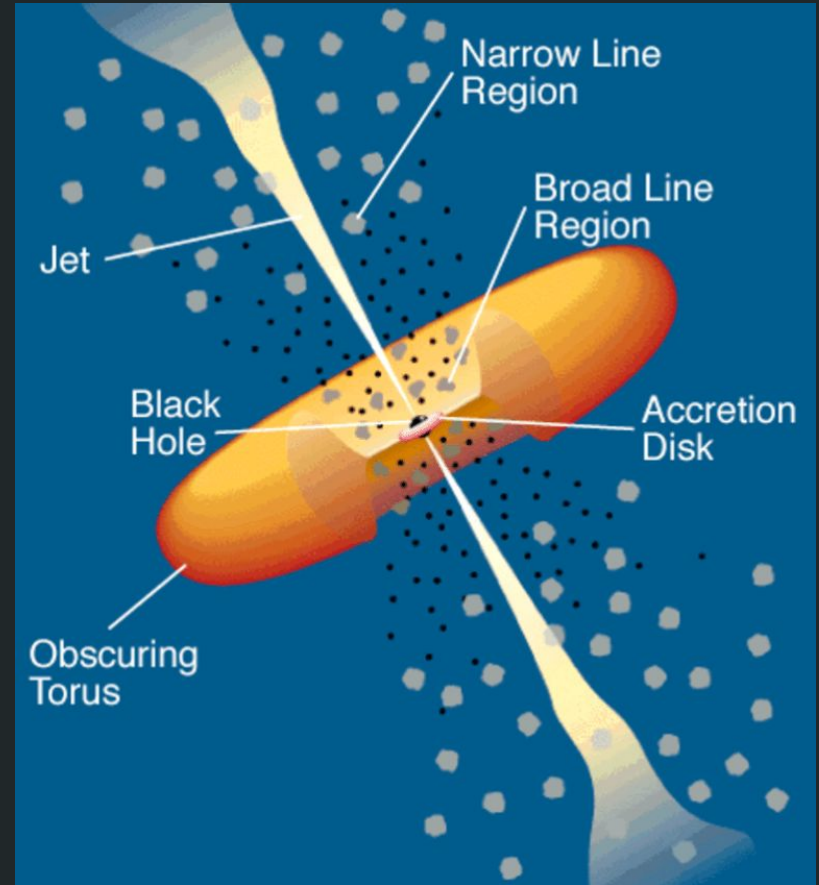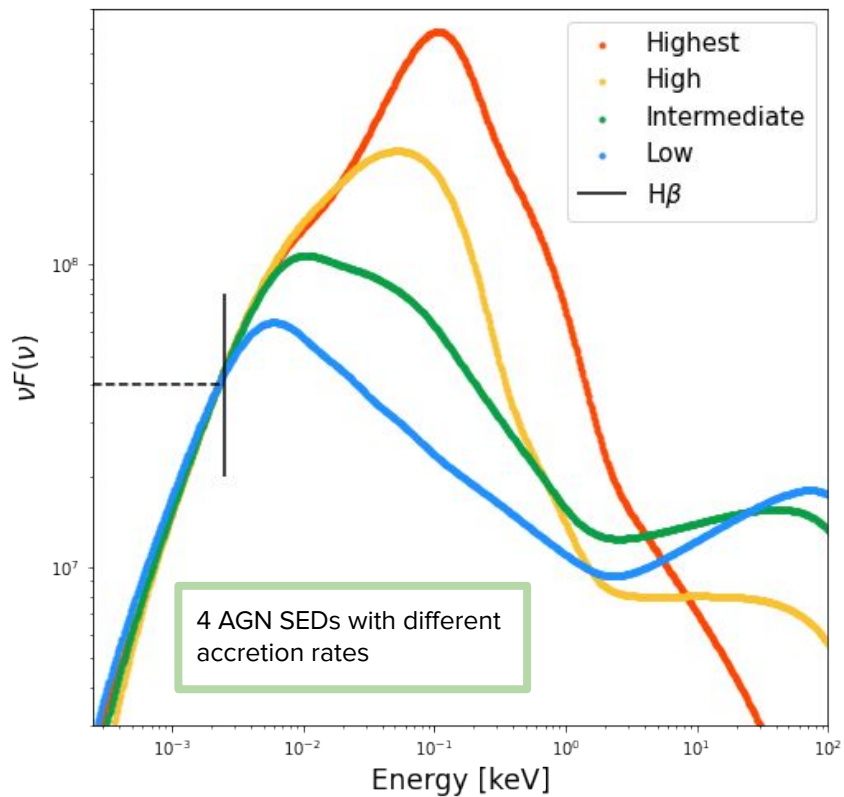
Irham Andika
Lucia Garate
Ashraf Ayubinia
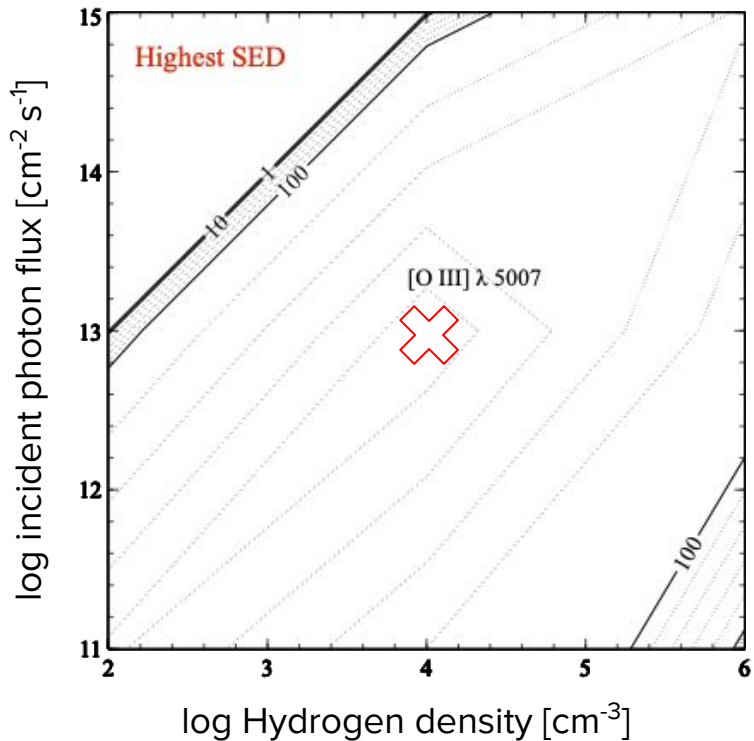
**Supervisors:**
Gary Ferland
Patrice Theulé

Narrow Line Region

Broad Line Region

Jet

Black Hole

Accretion Disk

Obscuring Torus

# CLOUDY[1] simulation setup



4 AGN SEDs with different accretion rates

# How does Eddington ratio affect Narrow Line Region emission?

Assuming constant:

log $N_H$ = 4 ➡ total hydrogen density

log $\phi$(H) = 13 ➡ incident photon flux

These increasing trends contradict the well known Eigenvector 1 correlation (e.g., Boroson+ 02, Shen+ 14).

1. Cloud covering factor decrease as Eddington ratio increases? (e.g., Ferland+ 20)
2. Ionization parameter is too large?