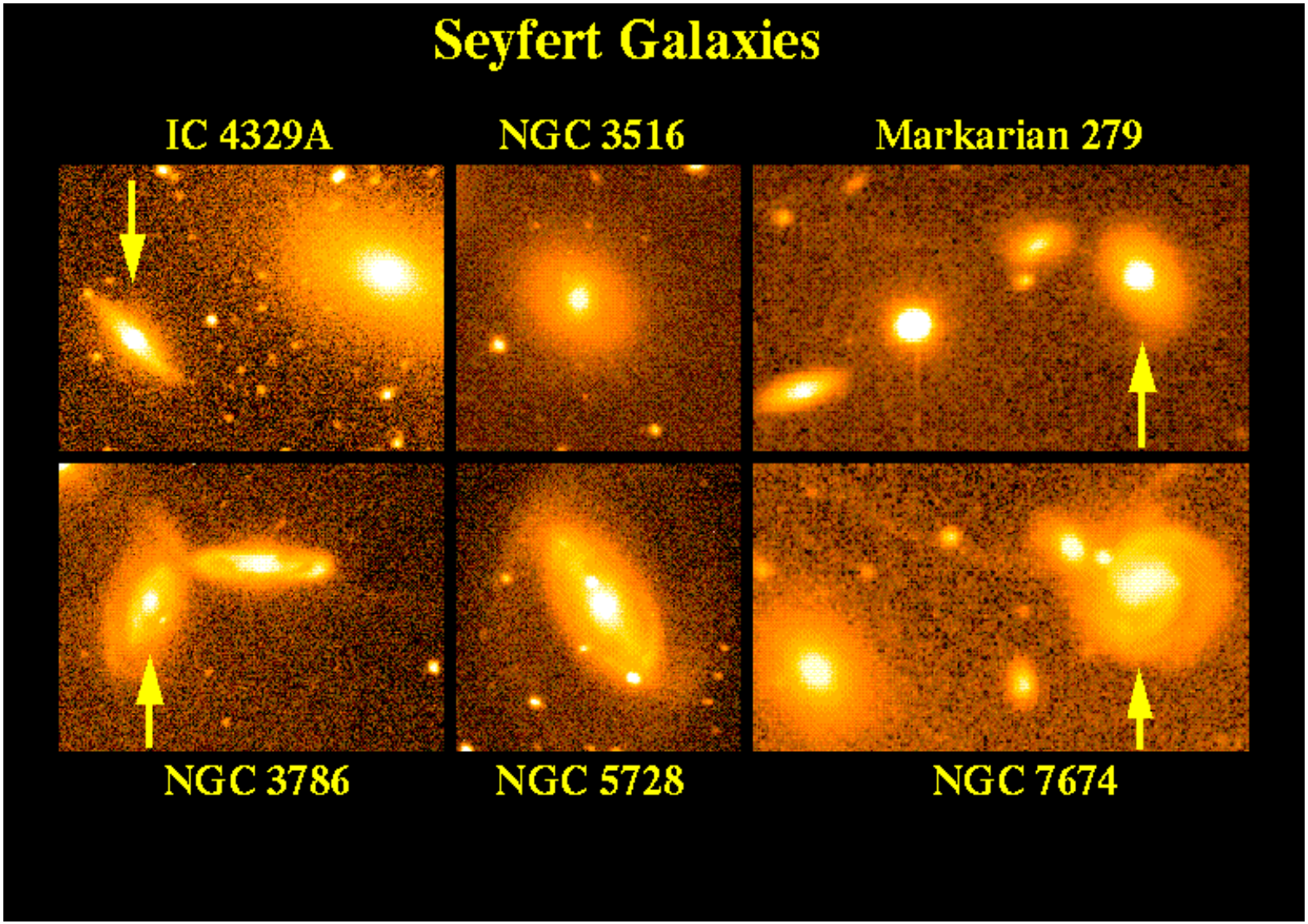
Galaxias activas

Juan Fabregat

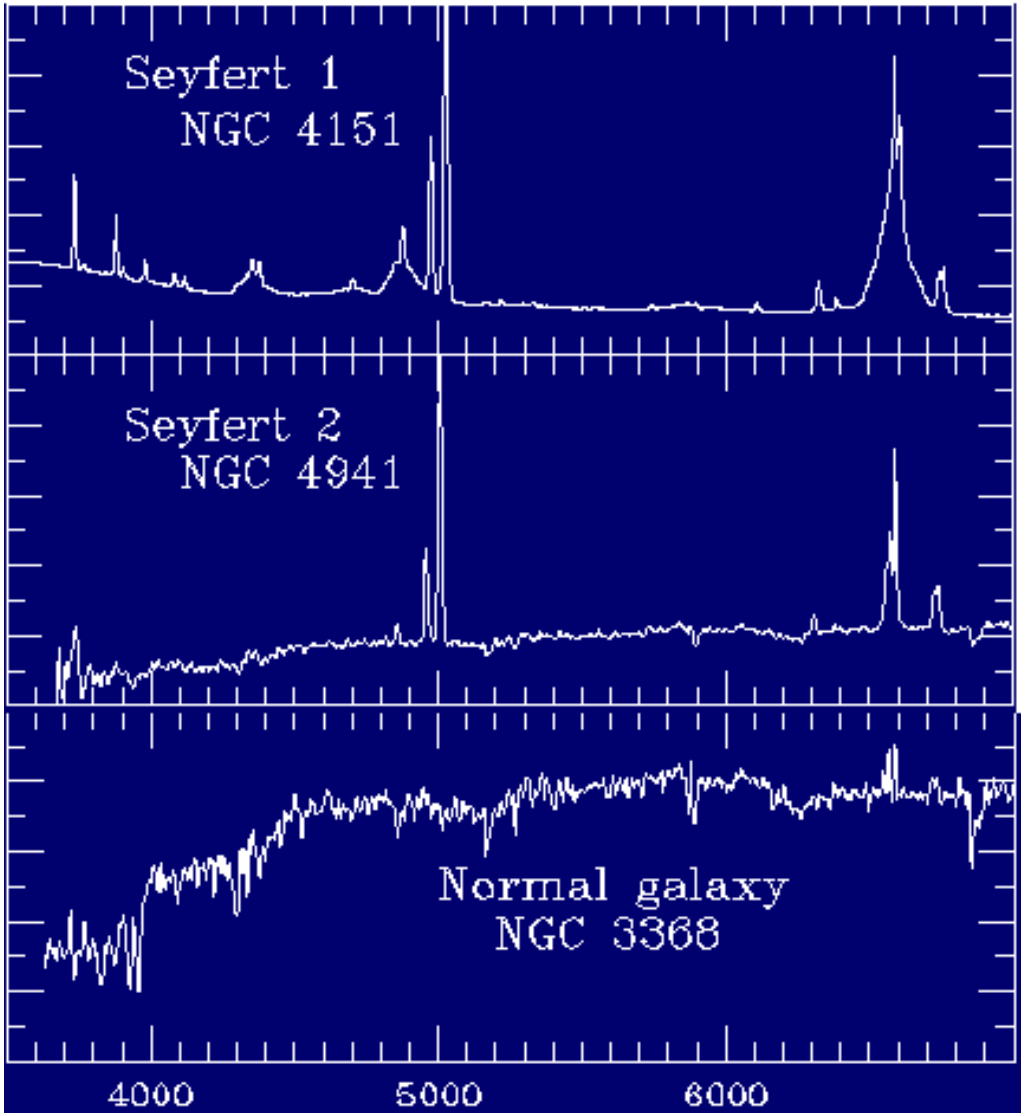
Observatorio Astronómico de la Universidad de Valencia

Galaxia normal

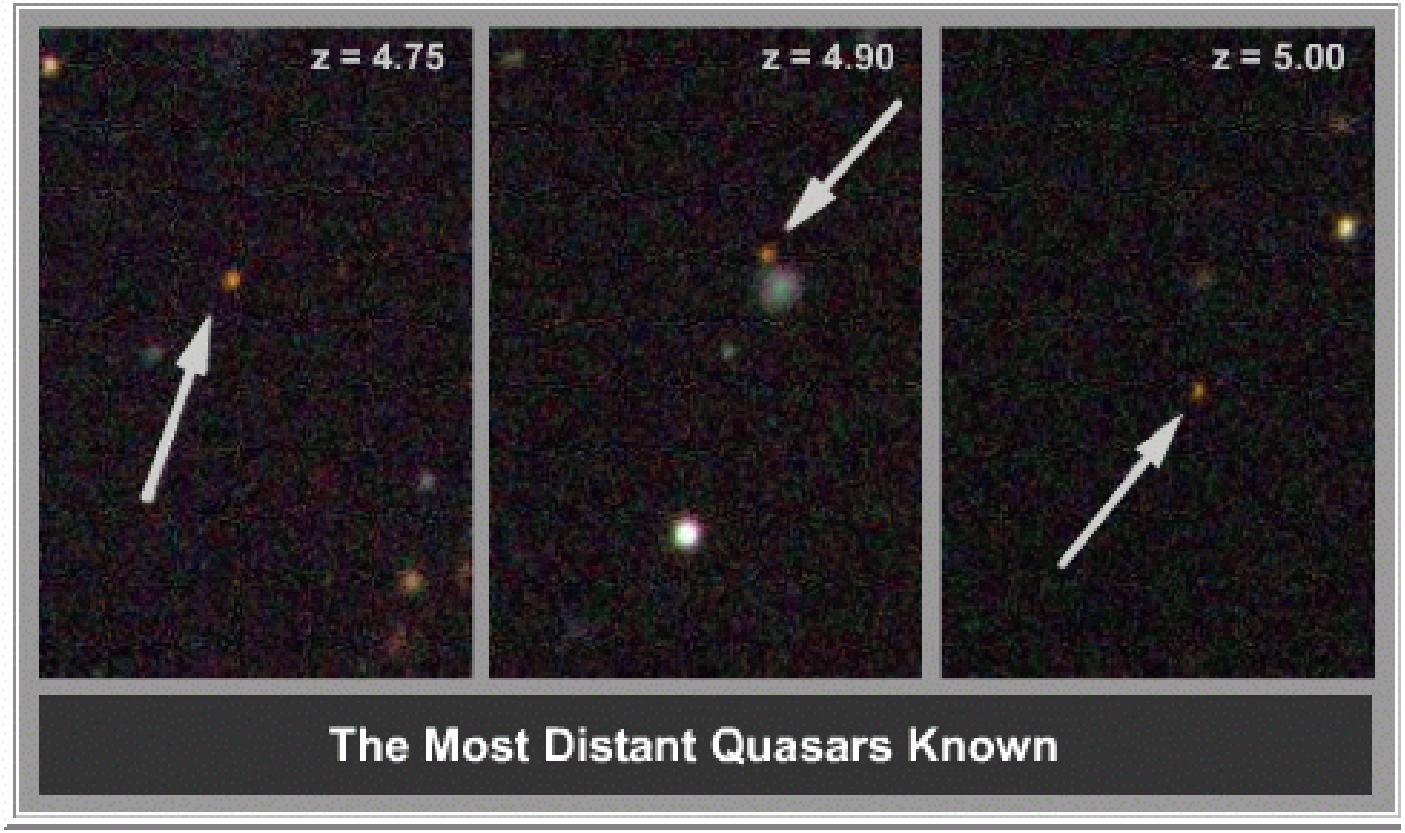
Galaxias de Seyfert



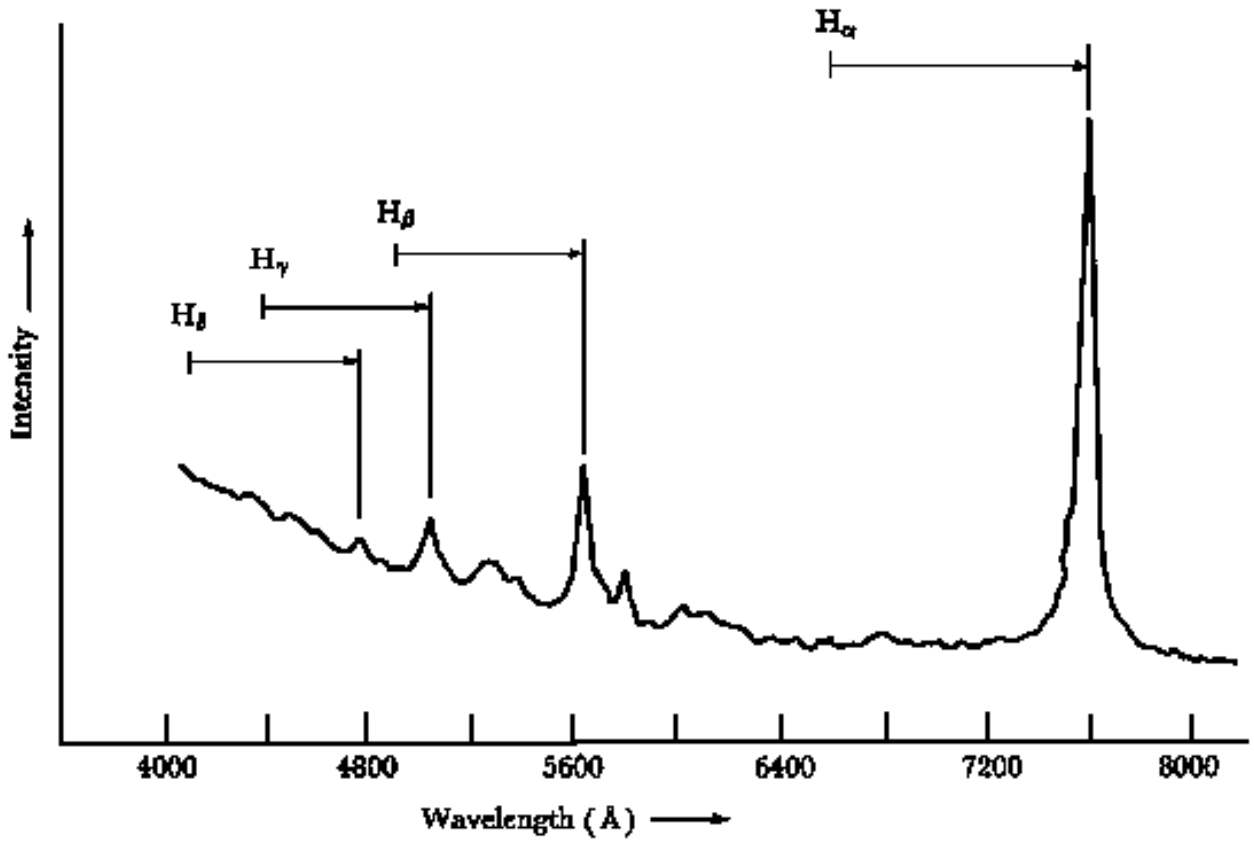
Galaxias de Seyfert



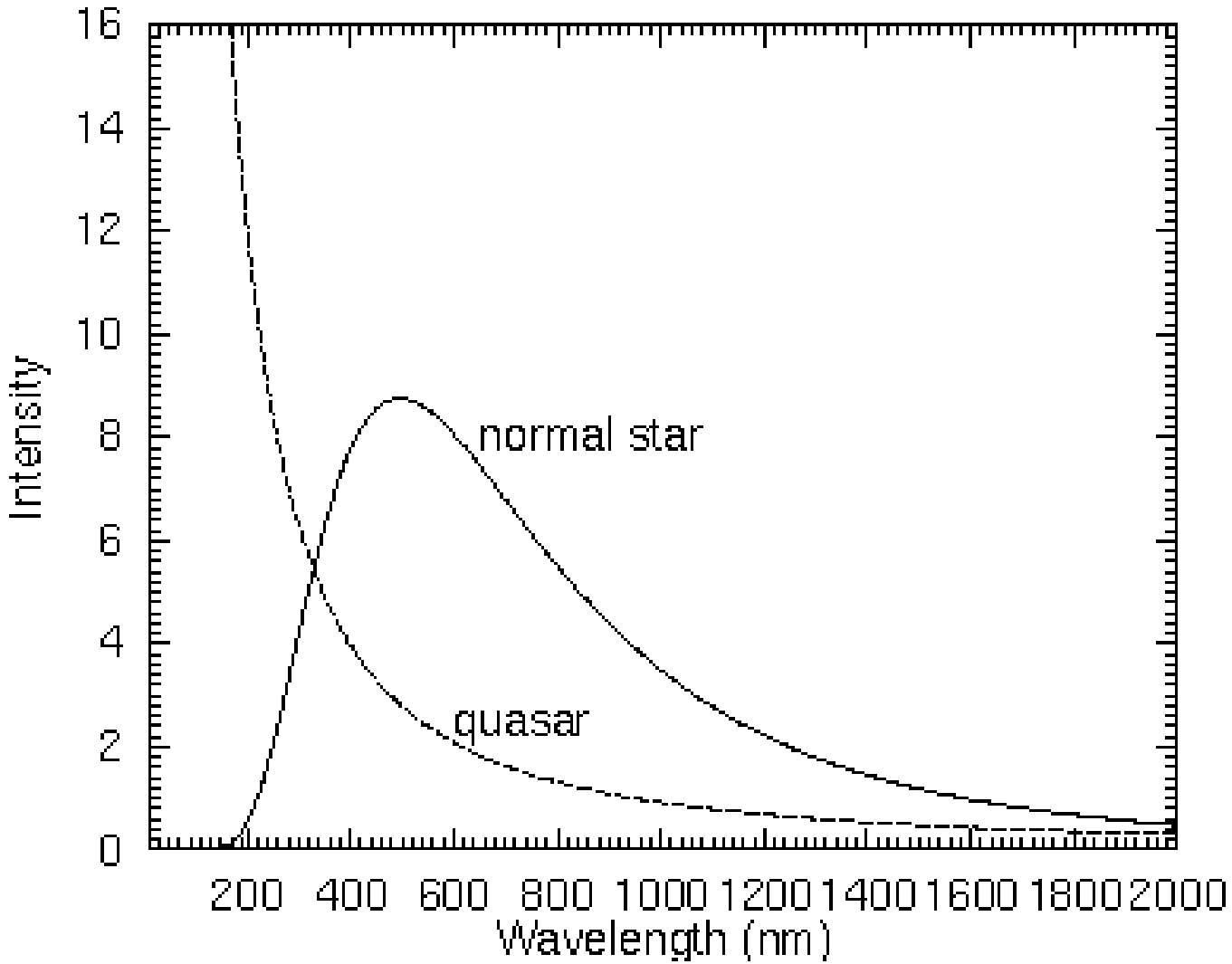
Quasares



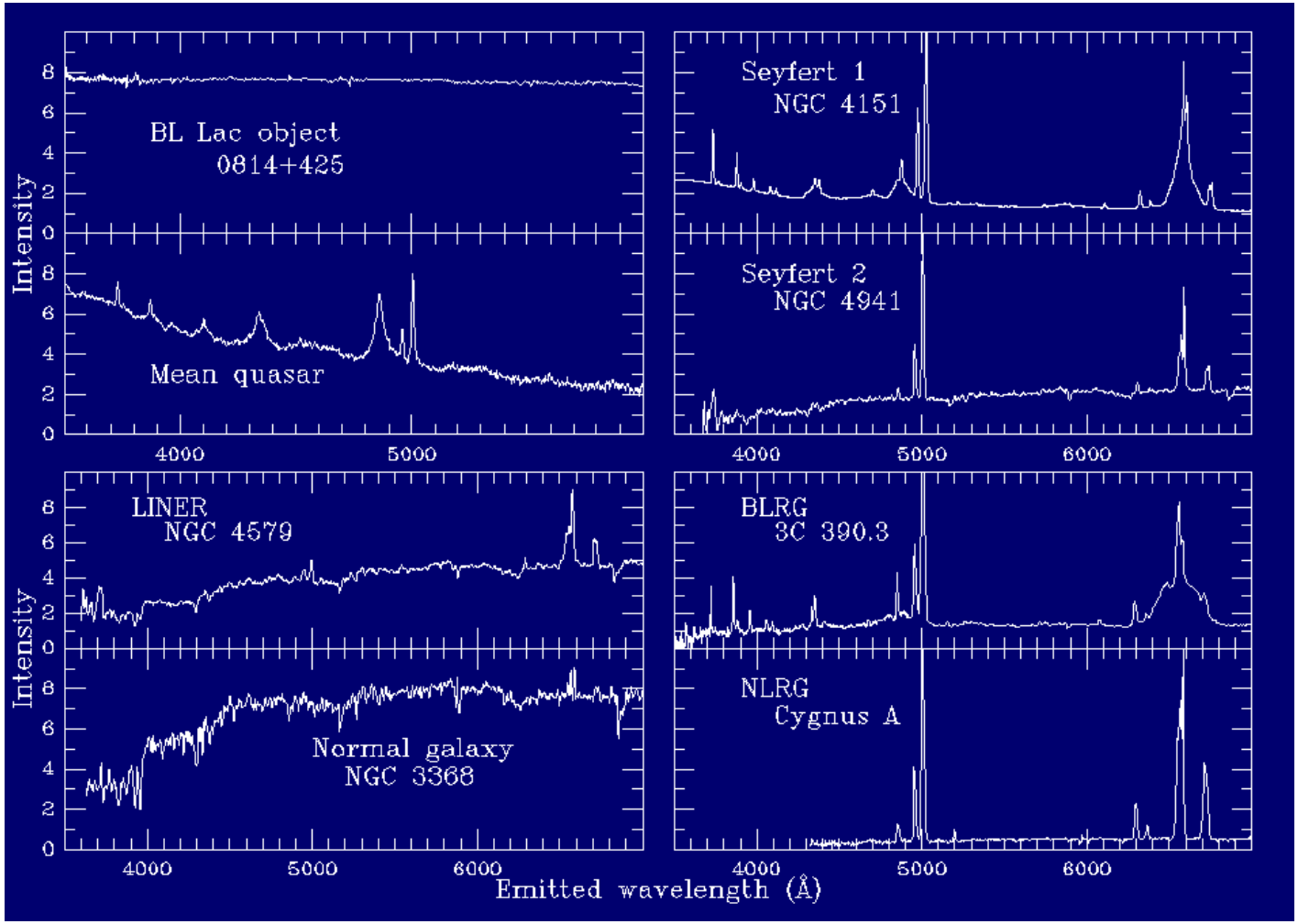
Quasares


H_α
H_β
H_γ
H_δ
Intensity
4000
4800
5600
6400
7200
8000
Wavelength (Å)

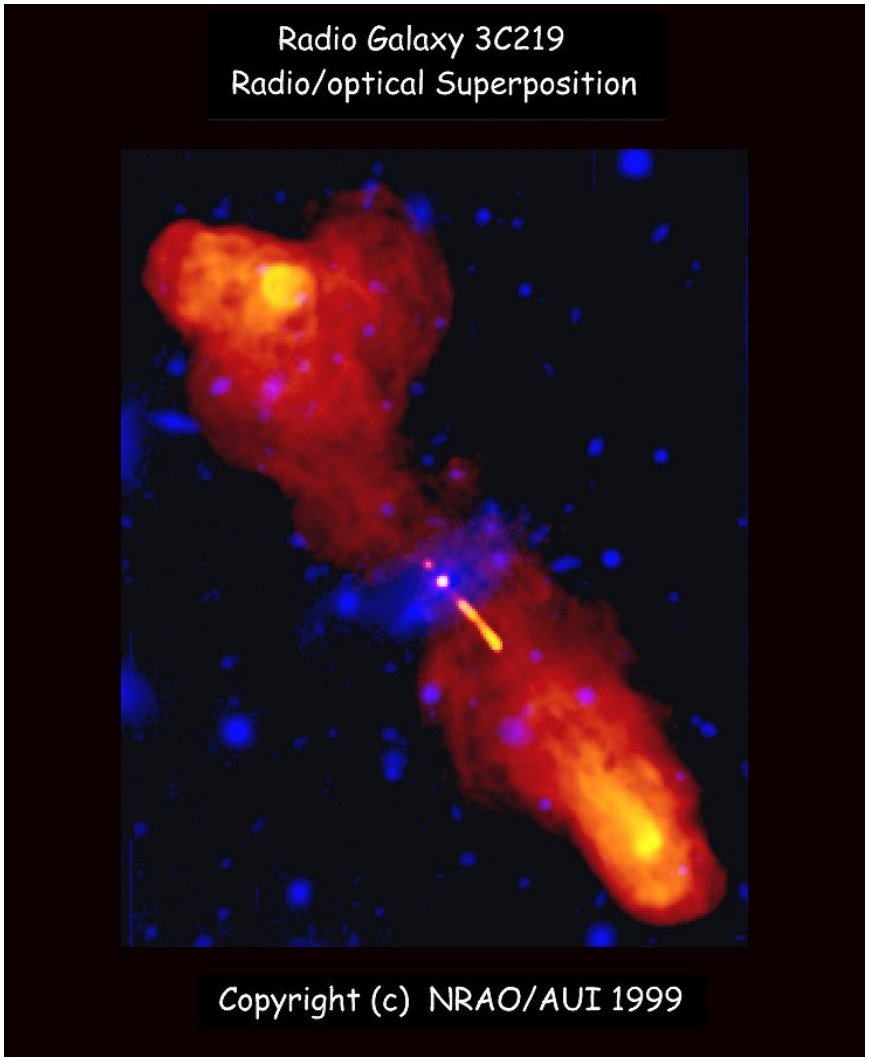
Quasares


16
14
12
10
8
6
4
2
0
Intensity
normal star
quasar
200
400
600
800
1000
1200
1400
1600
1800
2000
Wavelength (nm)

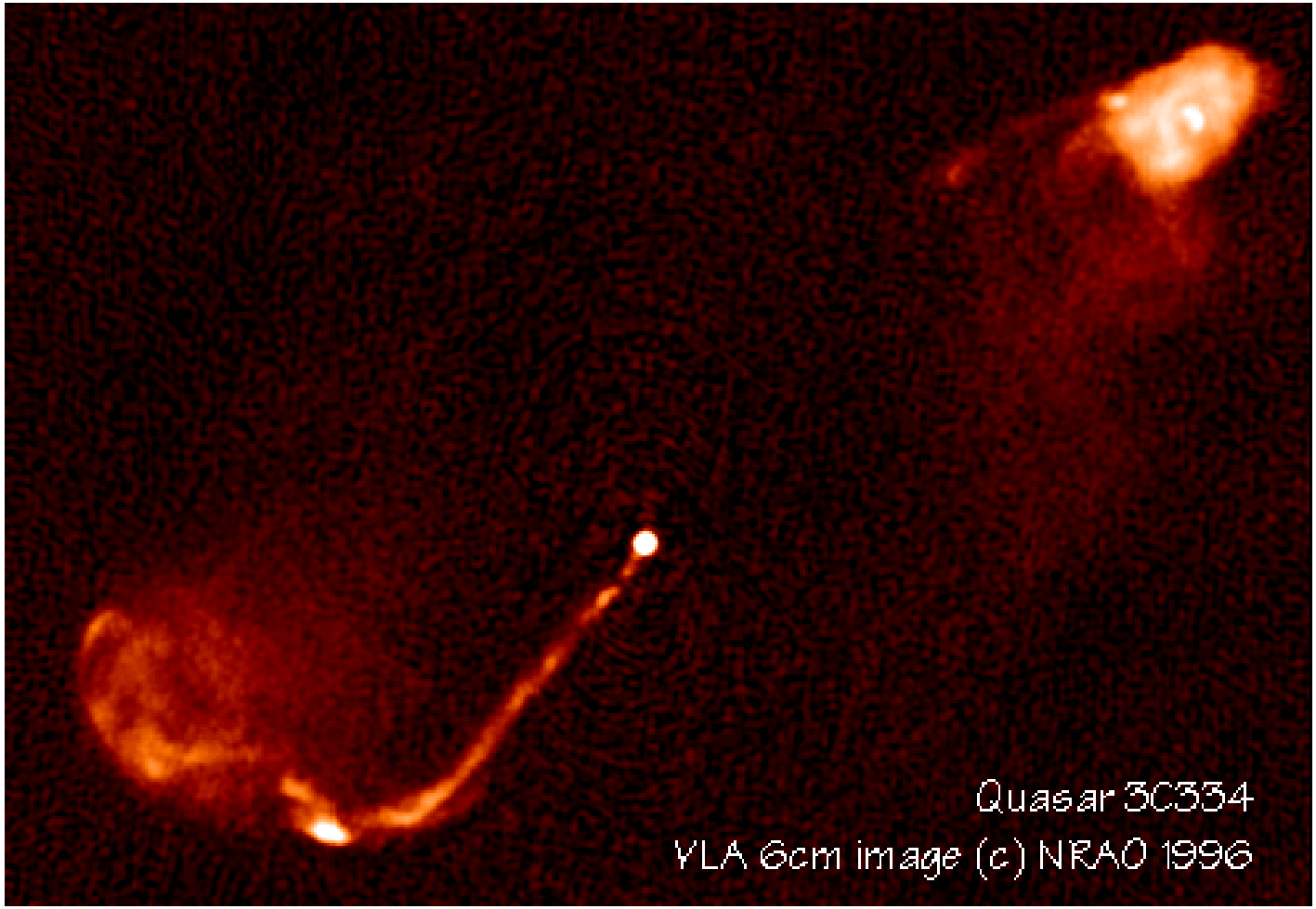
AGNs


BL Lac object
0814+425
Mean quasar
Seyfert 1
NGC 4151
Seyfert 2
NGC 4941
LINER
NGC 4579
Normal galaxy
NGC 3368
BLRG
3C 390.3
NLRG
Cygnus A
Intensity
Intensity
Emitted wavelength (Å)
0
2
4
6
8
4000
5000
6000

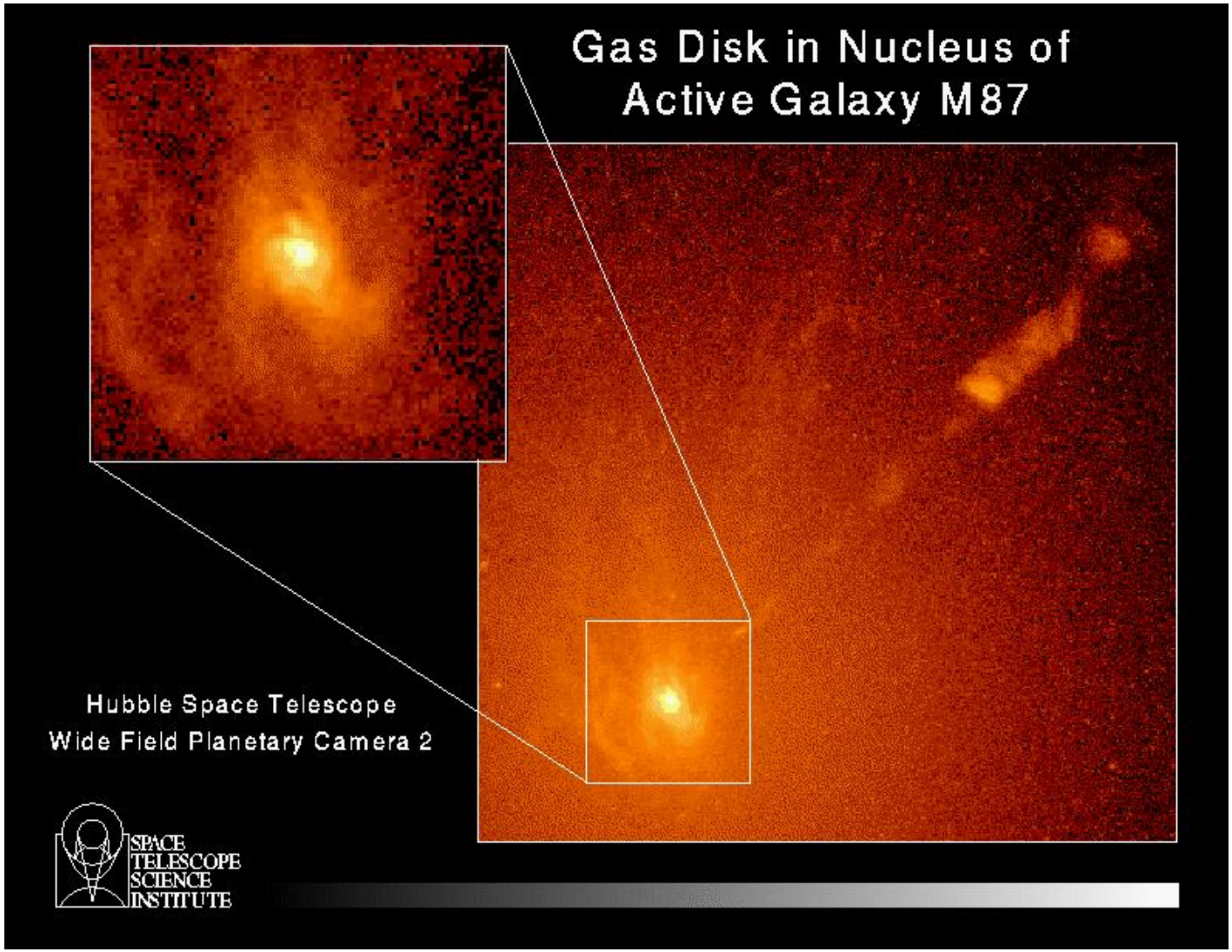
Emisión radio



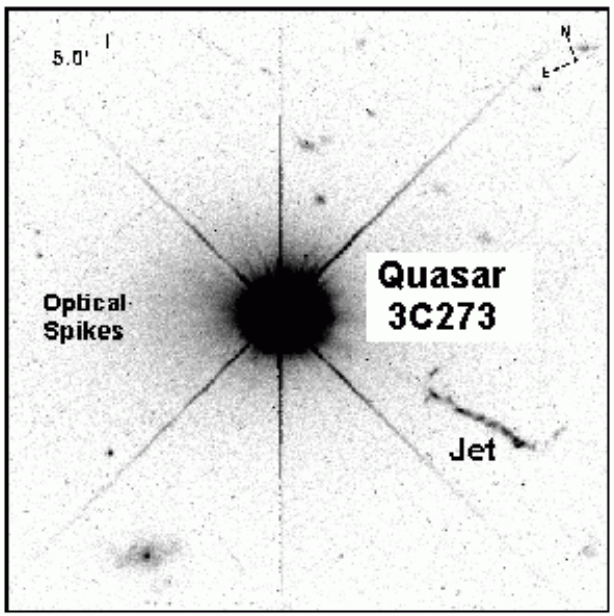
Emisión radio

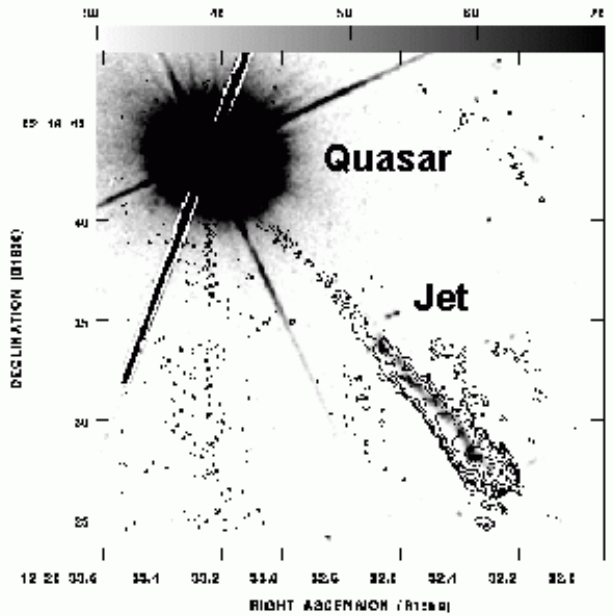


Chorros ópticos



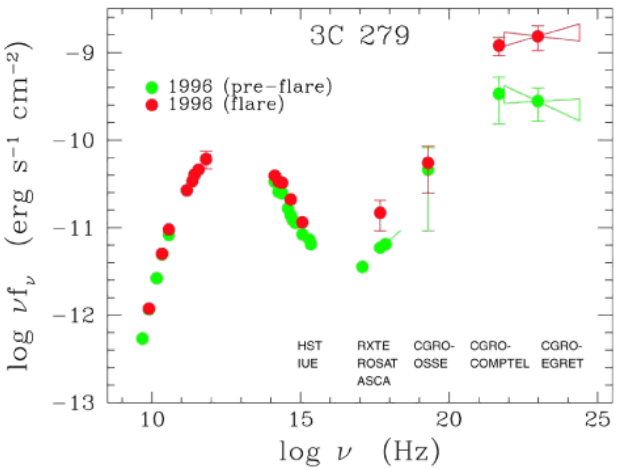
Chorros ópticos

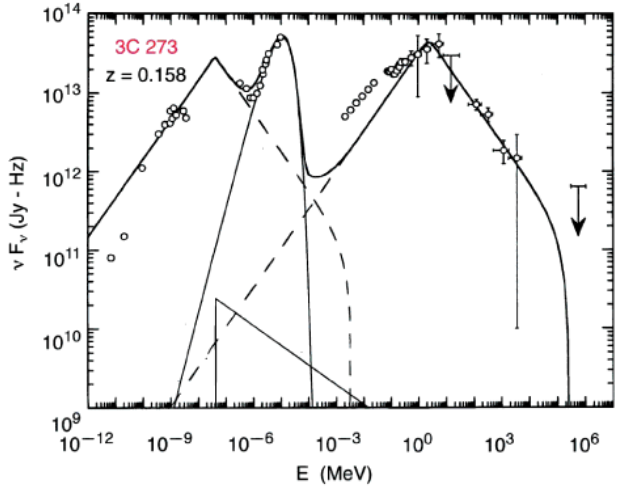


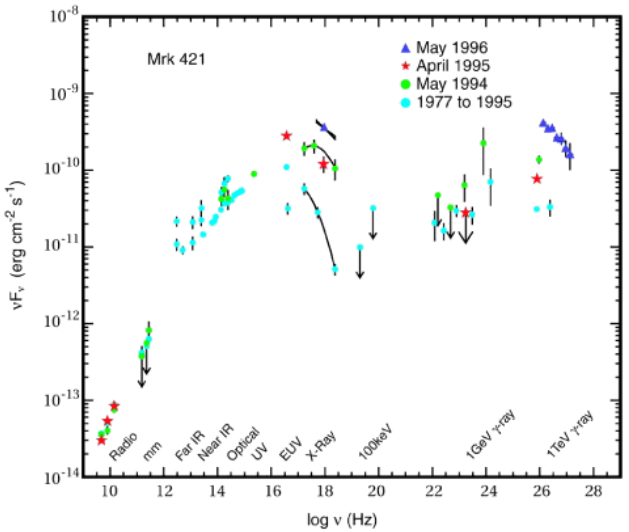


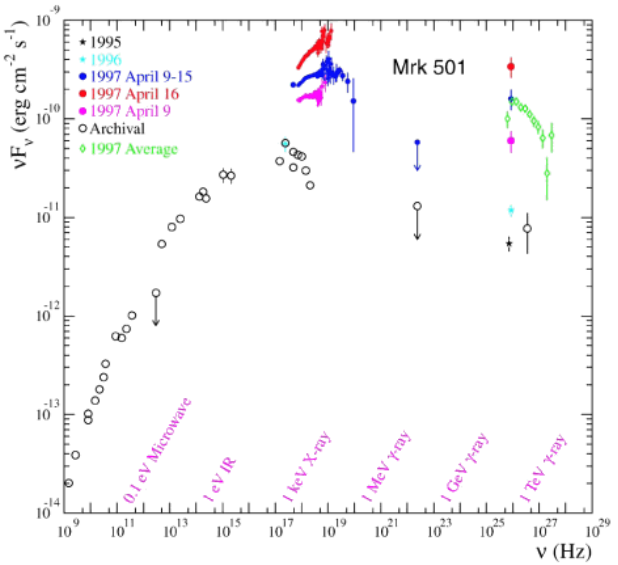
The quasar 3C273. Left image shows the quasar and the jet. Right image superposes on this contours of radio frequency intensity. The sharp radial lines from the quasar are optical spike artifacts because of its brightness (Source).

Distribución espectral

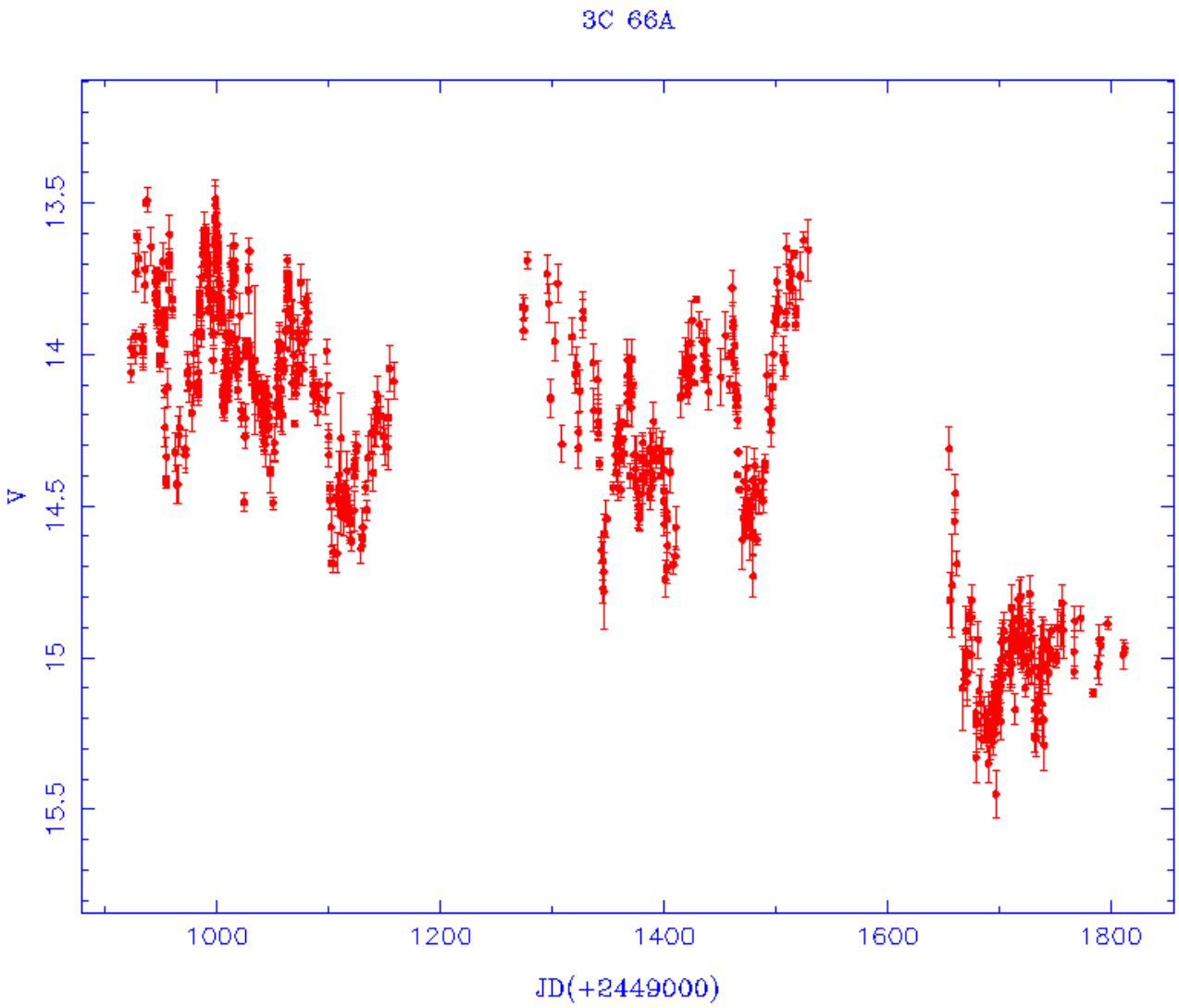




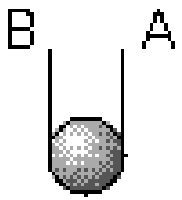


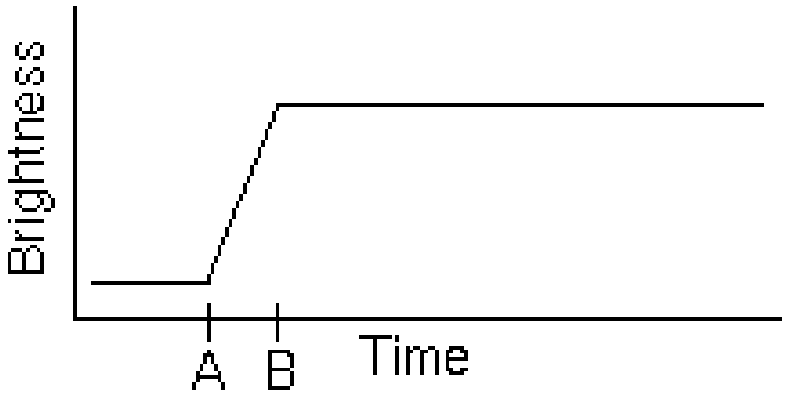


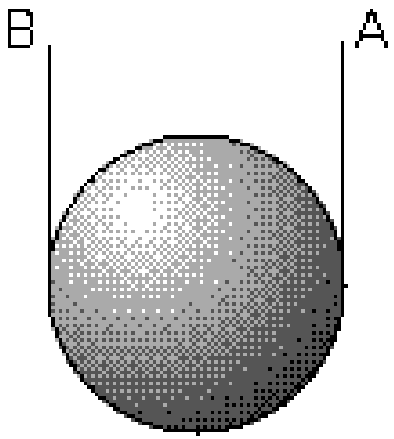
Variabilidad

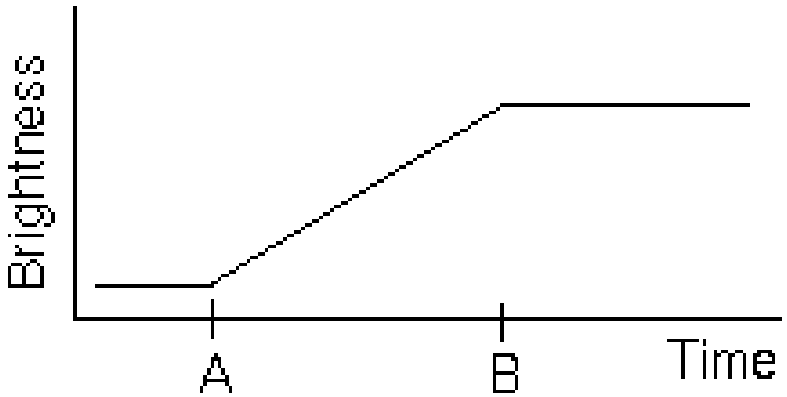


Variabilidad









Variabilidad

- $r < c\Delta t(1+z)$
- $\Delta t \sim 1$ dia y $z \sim 1 \Longrightarrow r \sim 1.3 \times 10^{10}$ km
- Acrecimiento sobre un objeto compacto
  $\Delta E_{ac} = \frac{GMm}{R}$
- Luminosidad de Eddington:
  $L_{Edd} = 1.3 \times 10^{38} \frac{M}{M_\odot}$ erg s^{-1}
- $L \sim 10^{46}$ erg s$^{-1} \Longrightarrow M \sim 10^8 M_\odot$

Variabilidad

- $r < c\Delta t(1+z)$
- $\Delta t \sim 1$ dia y $z \sim 1 \Longrightarrow r \sim 1.3 \times 10^{10}$ km
- Acrecimiento sobre un objeto compacto
  $\Delta E_{ac} = \frac{GMm}{R}$
- Luminosidad de Eddington:
  $L_{Edd} = 1.3 \times 10^{38} \frac{M}{M_\odot}$ erg s^{-1}
- $L \sim 10^{46}$ erg s$^{-1} \Longrightarrow M \sim 10^8 M_\odot$

Variabilidad

- $r < c\Delta t(1+z)$
- $\Delta t \sim 1$ dia y $z \sim 1 \Longrightarrow r \sim 1.3 \times 10^{10}$ km

- Acrecimiento sobre un objeto compacto
  $\Delta E_{ac} = \frac{GMm}{R}$
- Luminosidad de Eddington:
  $L_{Edd} = 1.3 \times 10^{38} \frac{M}{M_\odot}$ erg s^{-1}
- $L \sim 10^{46}$ erg s$^{-1} \Longrightarrow M \sim 10^8 M_\odot$

Variabilidad

- $r < c\Delta t(1+z)$
- $\Delta t \sim 1$ dia y $z \sim 1 \Longrightarrow r \sim 1.3 \times 10^{10}$ km

- Acrecimiento sobre un objeto compacto
  $\Delta E_{ac} = \frac{GMm}{R}$
- Luminosidad de Eddington:
  $L_{Edd} = 1.3 \times 10^{38} \frac{M}{M_\odot}$ erg s^{-1}
- $L \sim 10^{46}$ erg s$^{-1} \Longrightarrow M \sim 10^8 M_\odot$

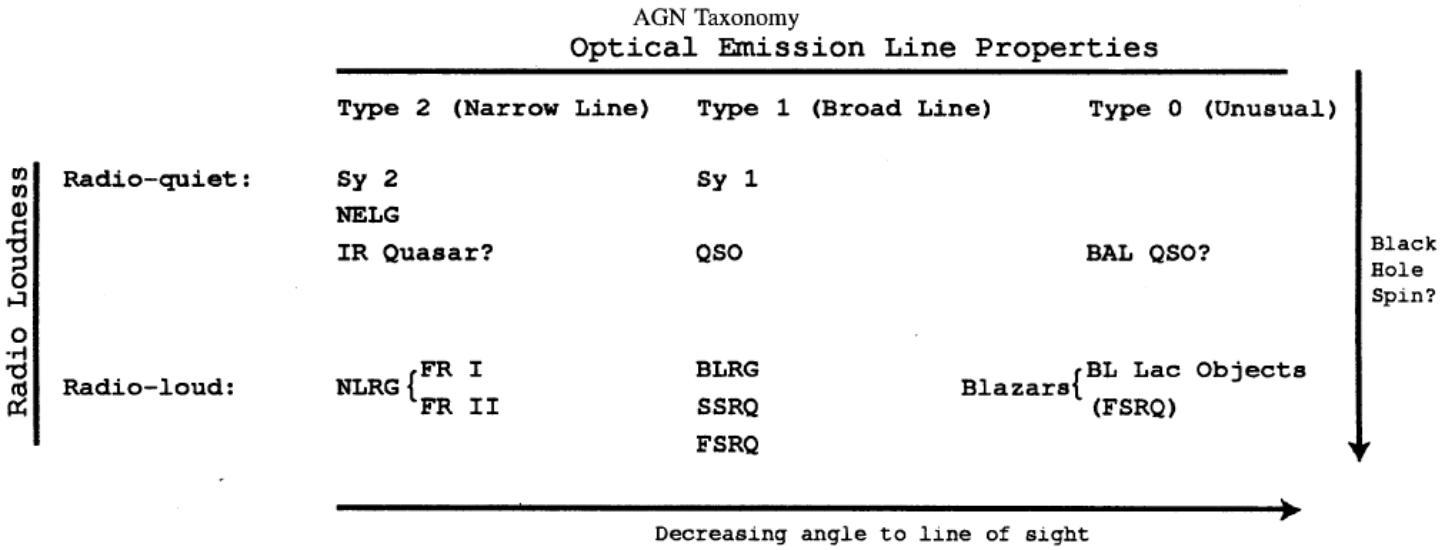
Variabilidad

- $r < c\Delta t(1+z)$
- $\Delta t \sim 1$ dia y $z \sim 1 \Longrightarrow r \sim 1.3 \times 10^{10}$ km

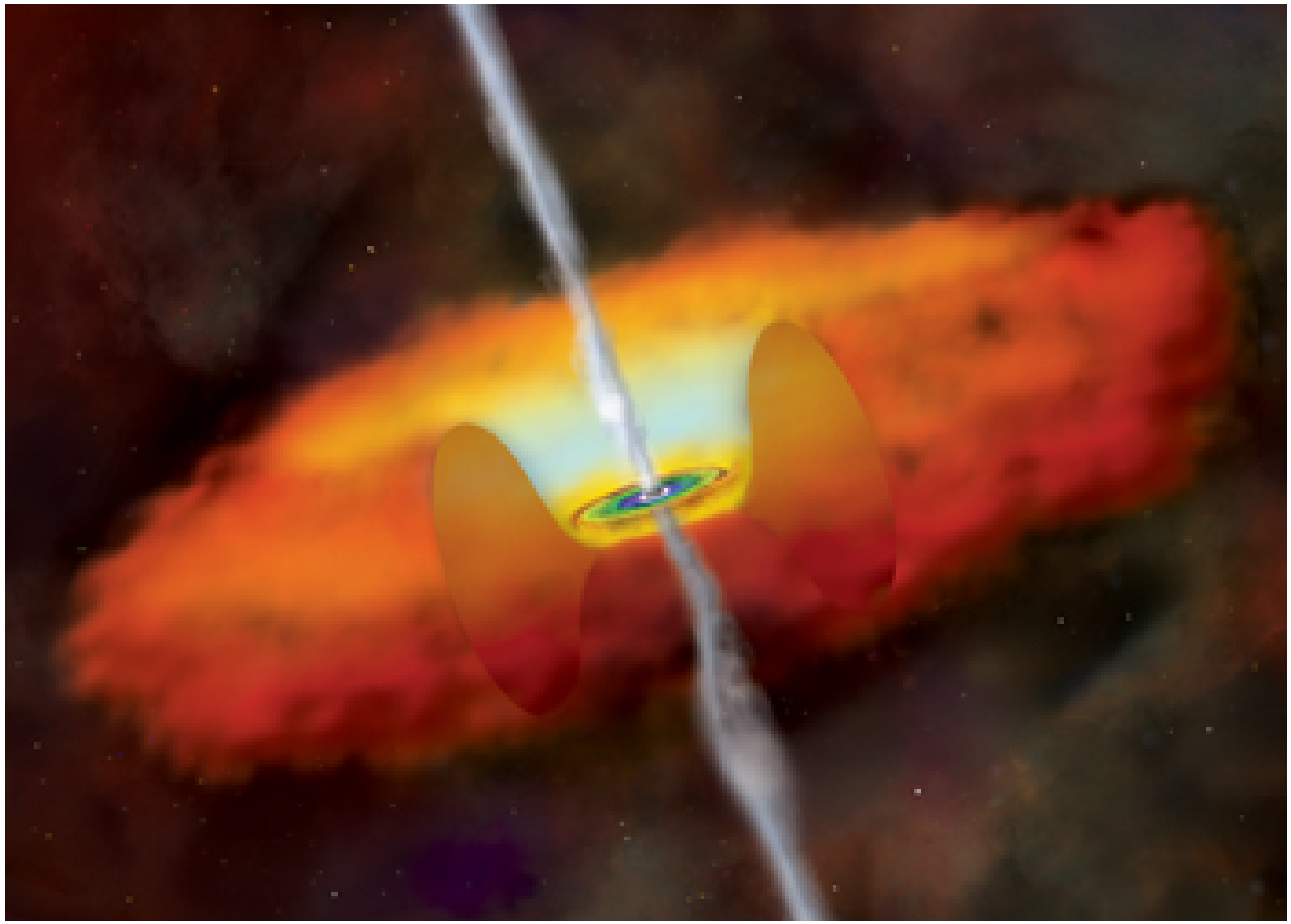
- Acrecimiento sobre un objeto compacto
  $\Delta E_{ac} = \frac{GMm}{R}$
- Luminosidad de Eddington:
  $L_{Edd} = 1.3 \times 10^{38} \frac{M}{M_\odot}$ erg s^{-1}
- $L \sim 10^{46}$ erg s$^{-1} \Longrightarrow M \sim 10^8 M_\odot$

Emisión radio

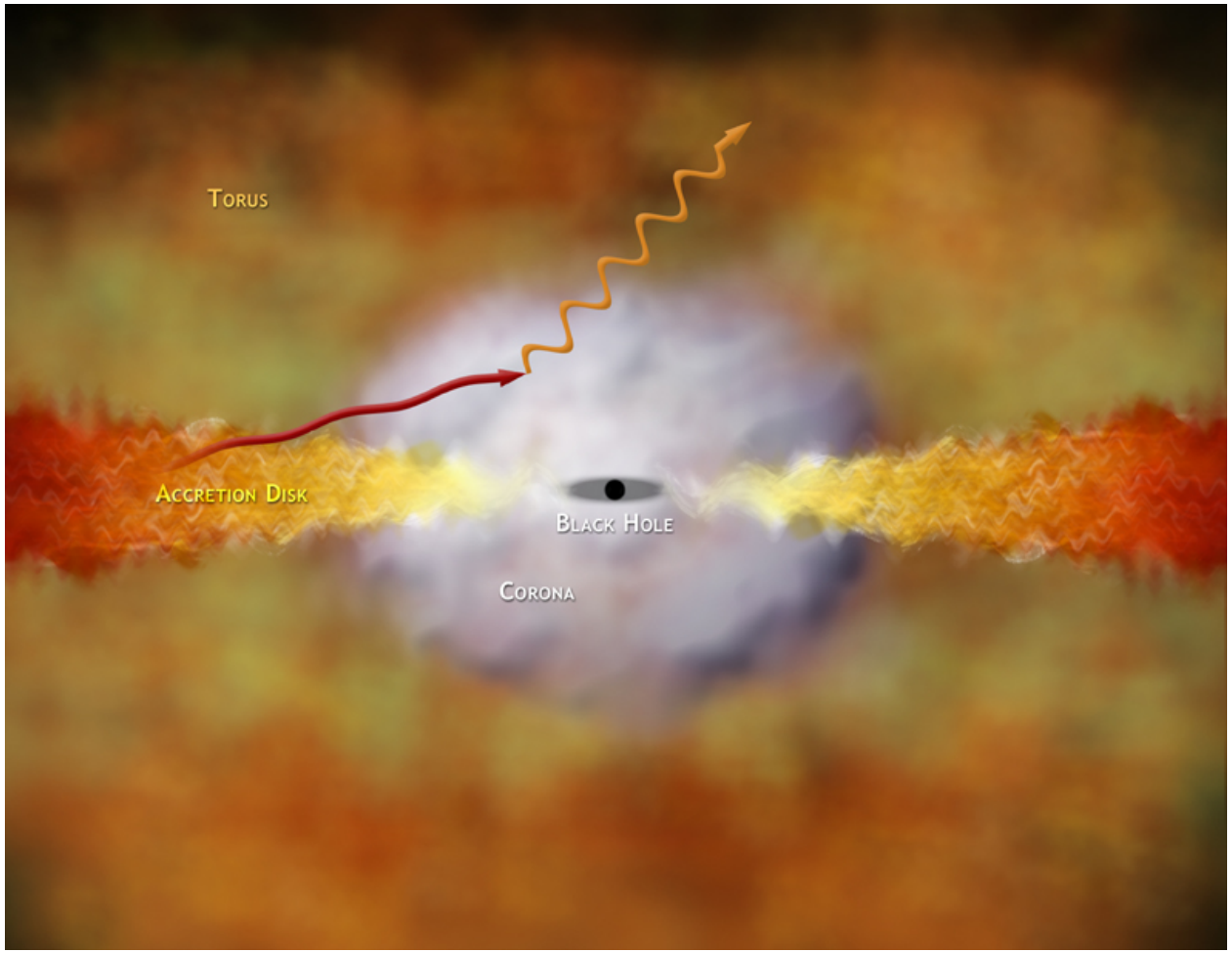
Radio-loud: $f_{5GHz}/f_B > 10$ (10 - 15% AGNs)



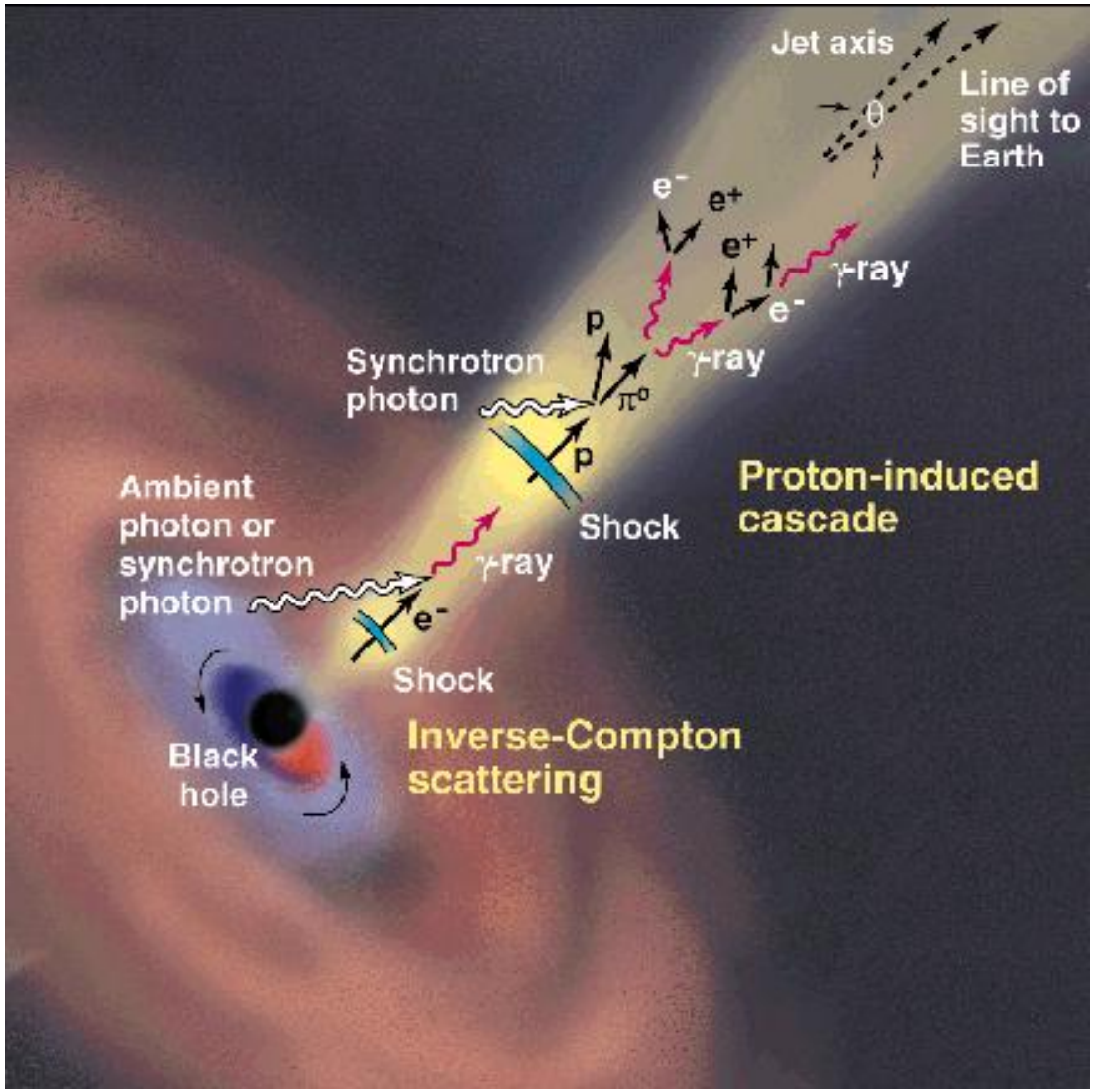
Disco de acrecimiento



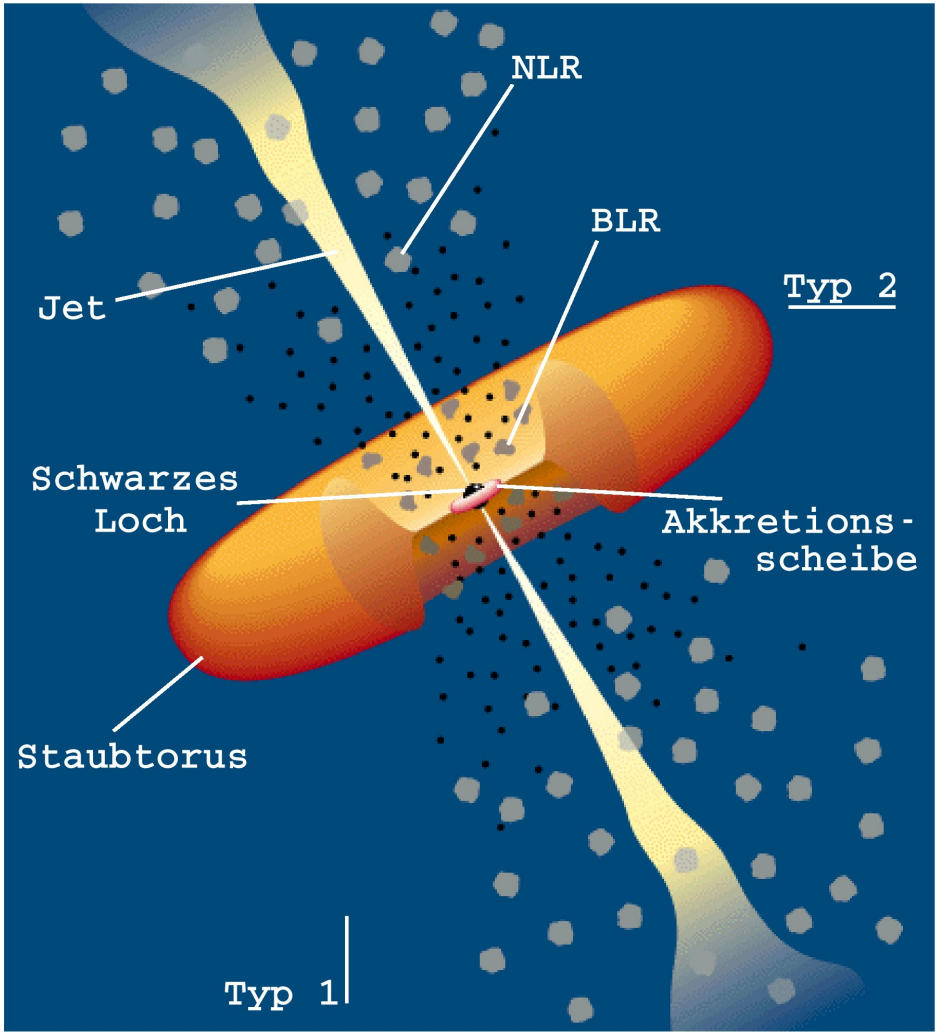
Disco de acrecimiento



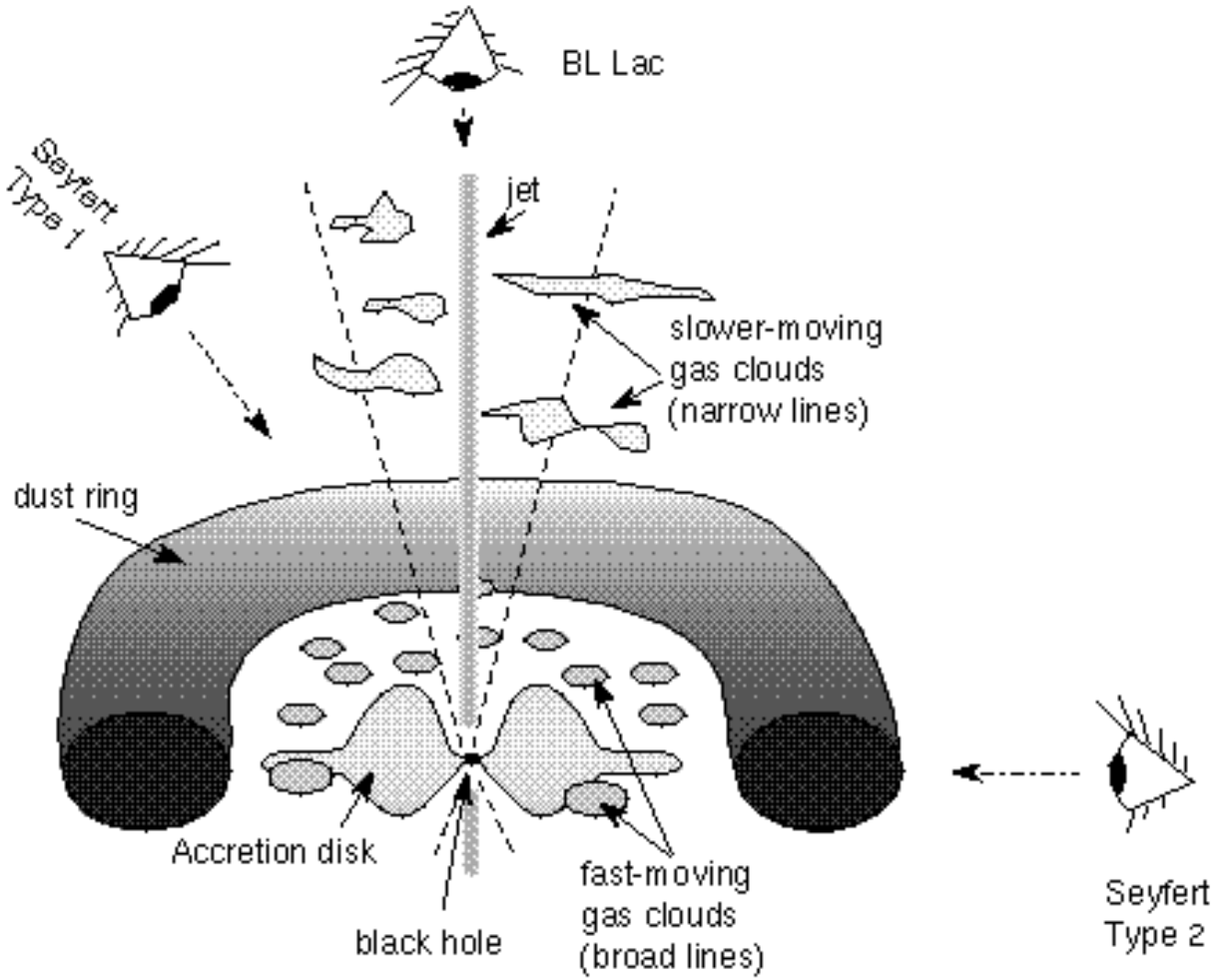
Disco de acrecimiento



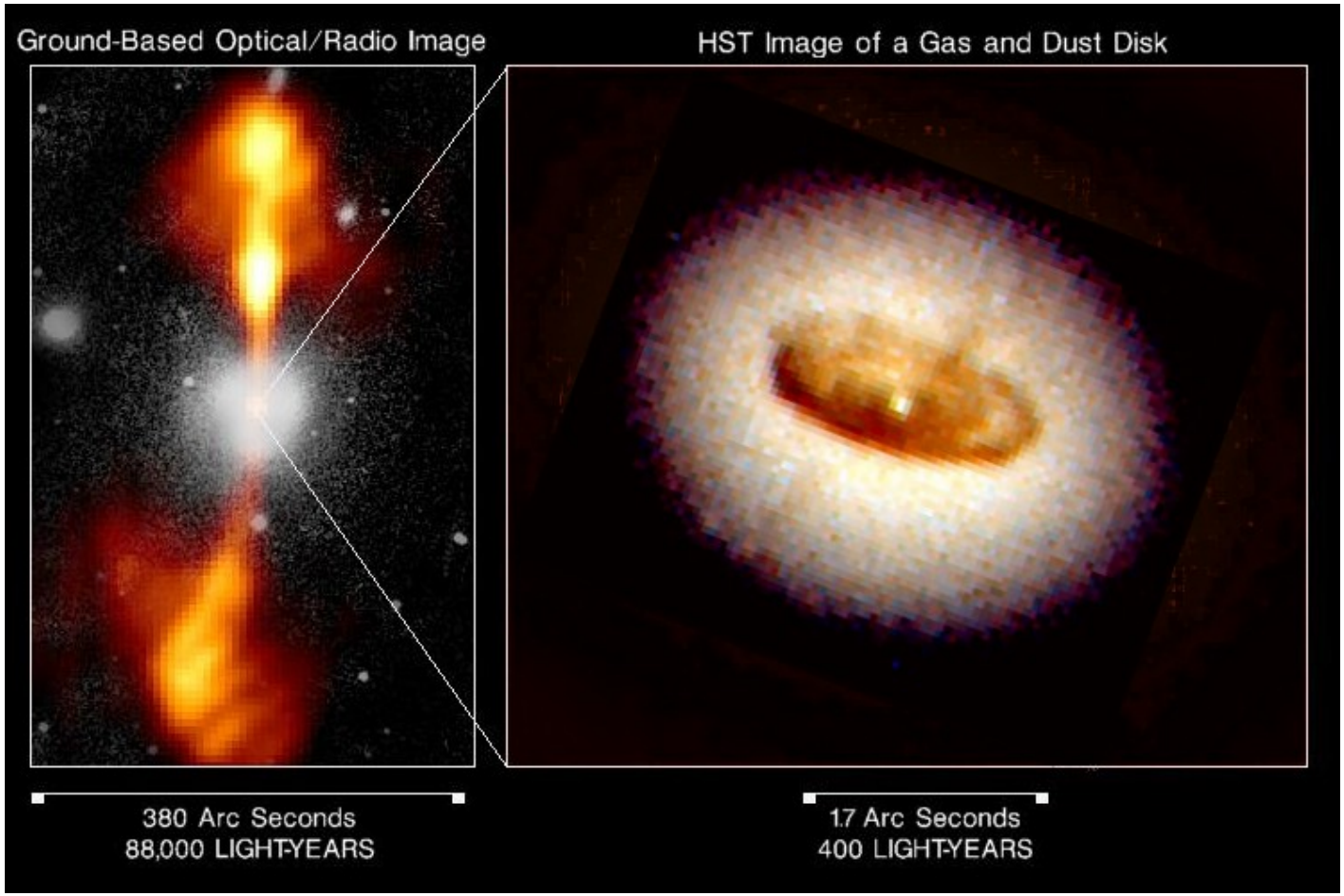
Disco de acrecimiento



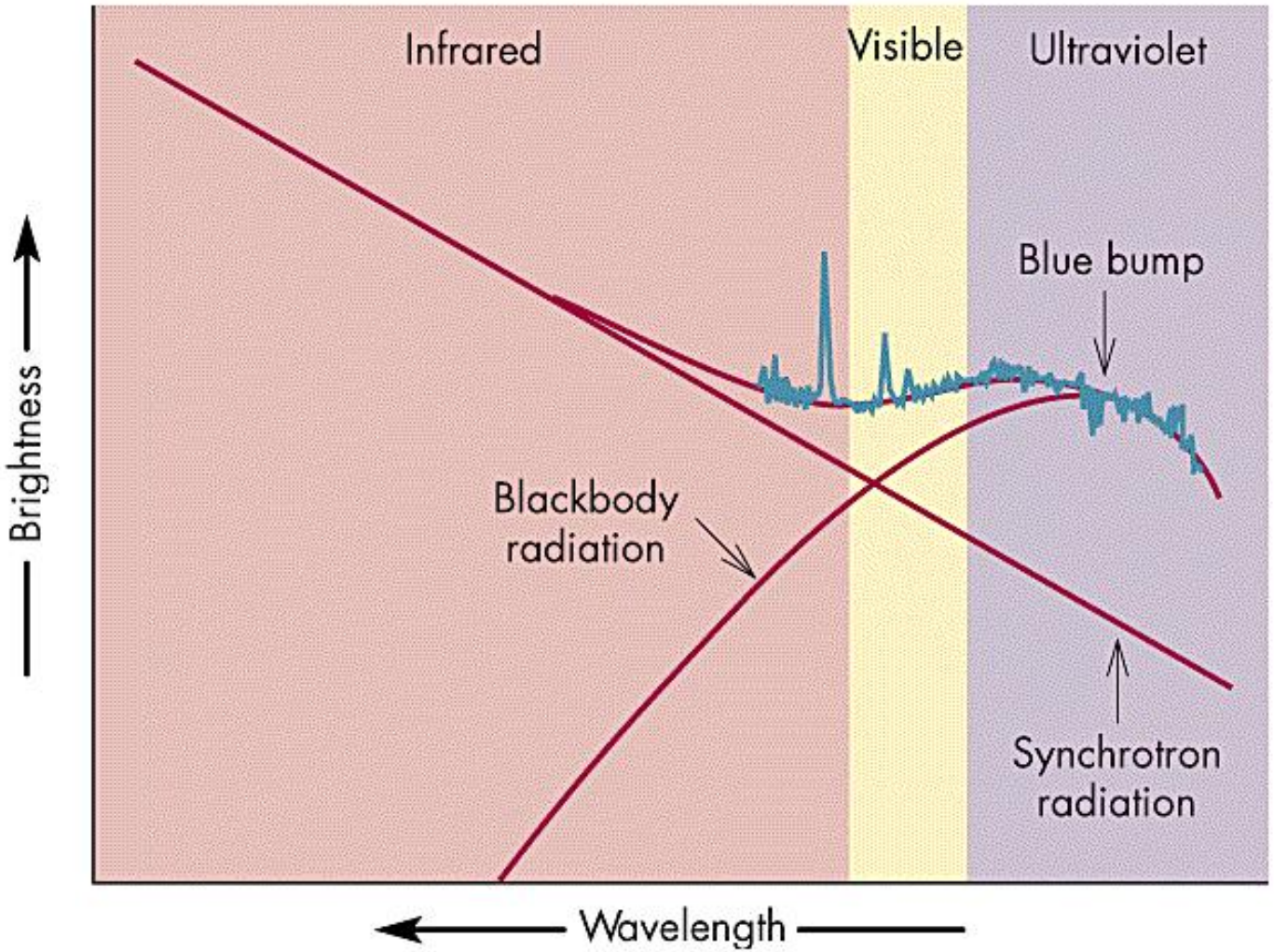
Disco de acrecimiento



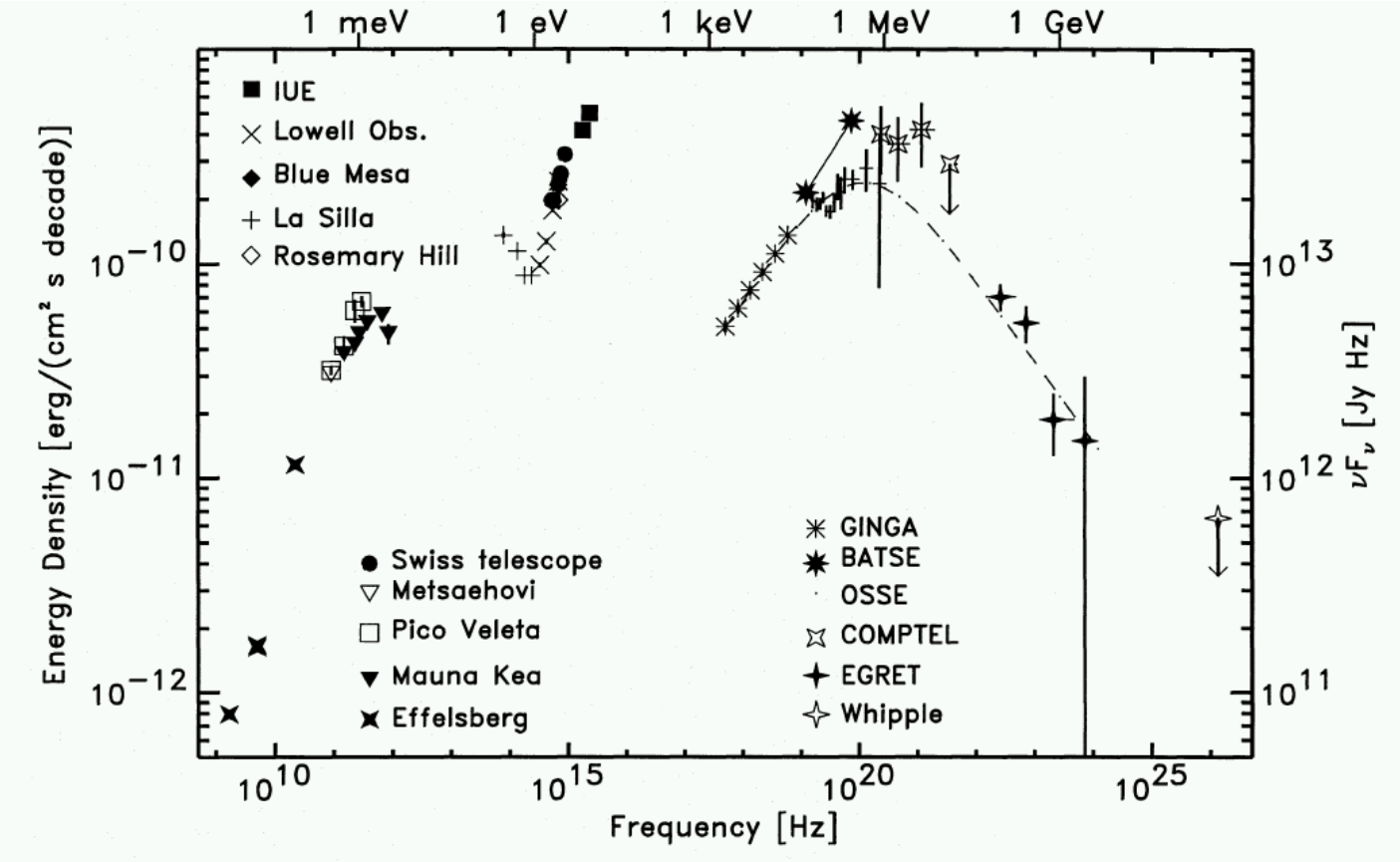
Disco de acrecimiento



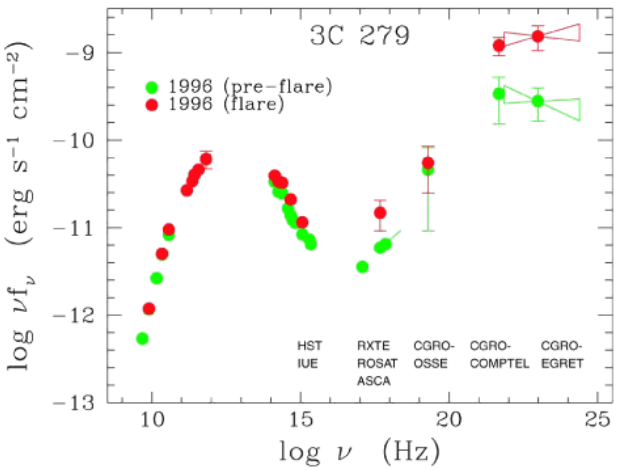
Distribución espectral

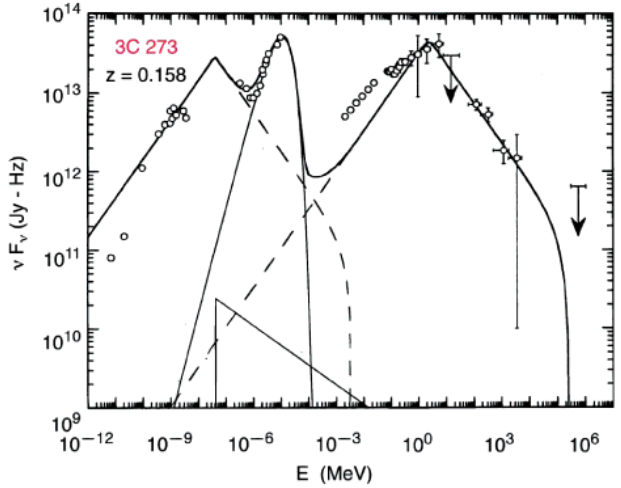


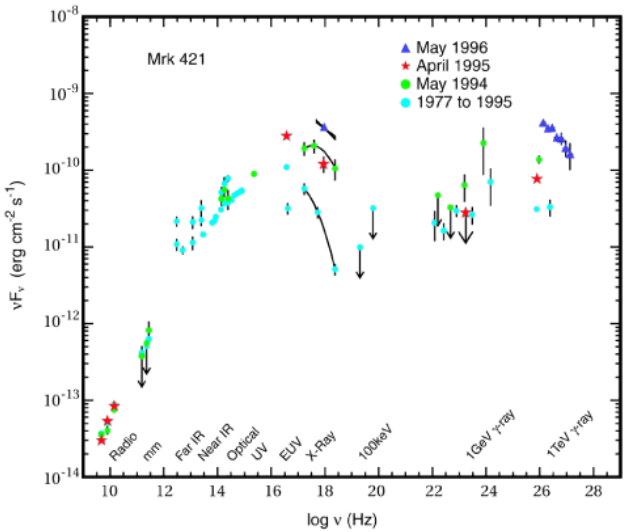
Distribución espectral

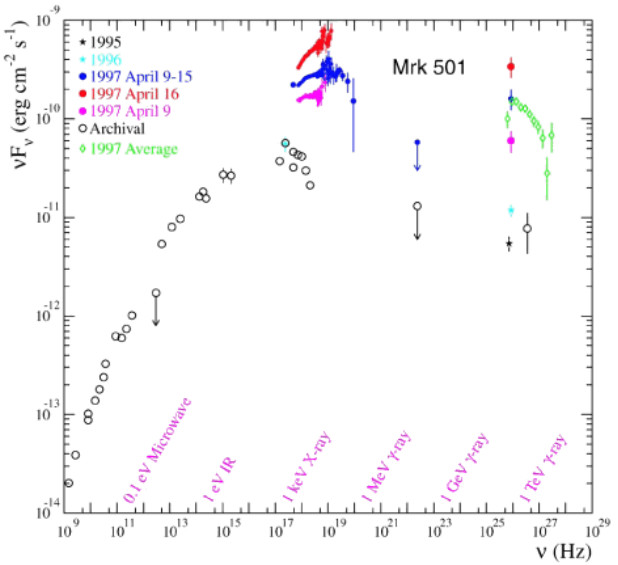


Distribución espectral









Distribución espectral