A two-zone emission model for blazars and the role of accretion disk MHD winds

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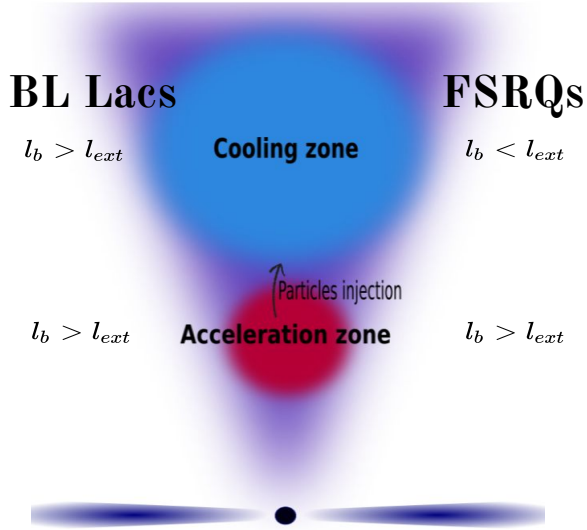
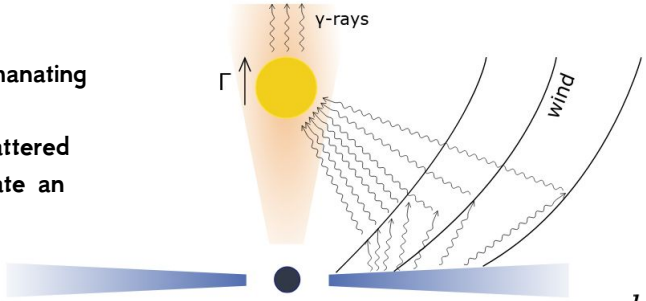


1. Self-consistent **MHD** wind emanating from the **AGN** accretion disk
2. Accretion disk photons are scattered on the wind particles and create an isotropic external photon field.



$$l_B = \frac{\sigma_T R_b U_B}{m_e c^2}, \quad l_{ext} = \frac{\sigma_T R_b U_{ext}}{m_e c^2}, \quad B \propto 1/z, \quad U_{ext} = constant$$

All parameters of the problem are related to the mass accretion rate:

$$U_B \propto \frac{\dot{m}}{\mathcal{M}},$$

$$U_{ext} \propto U_{sc} \propto \frac{\dot{m}^{\alpha+1}}{\mathcal{M}} \quad (\alpha = 1 \text{ for } \dot{m} \geq 0.1 \text{ and } \alpha = 2 \text{ for } \dot{m} < 0.1),$$

1. We assume that particles accelerate into a zone close to the black hole and calculate their Spectral Energy Distribution (**SED**), by solving the integro-differential kinetic equations numerically.
2. We inject the escaping electrons from the Radiation zone into Cooling zone, which is at a larger distance and then we calculate the **SED**.
3. We add up the fluxes of the two zones and obtain the total spectrum and then the theoretical Blazar Sequence is reproduced.