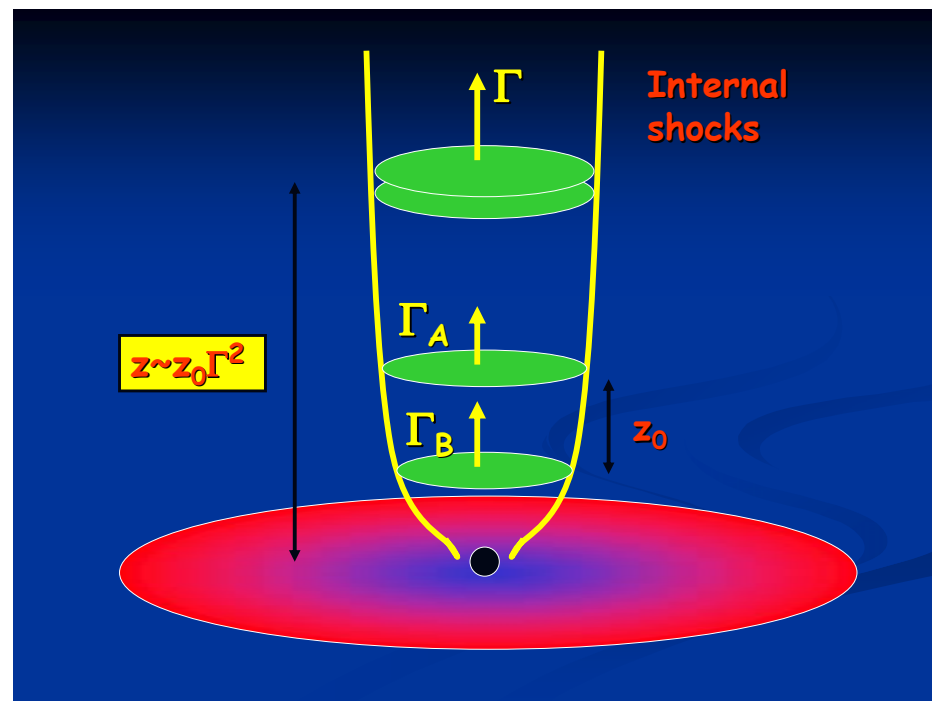
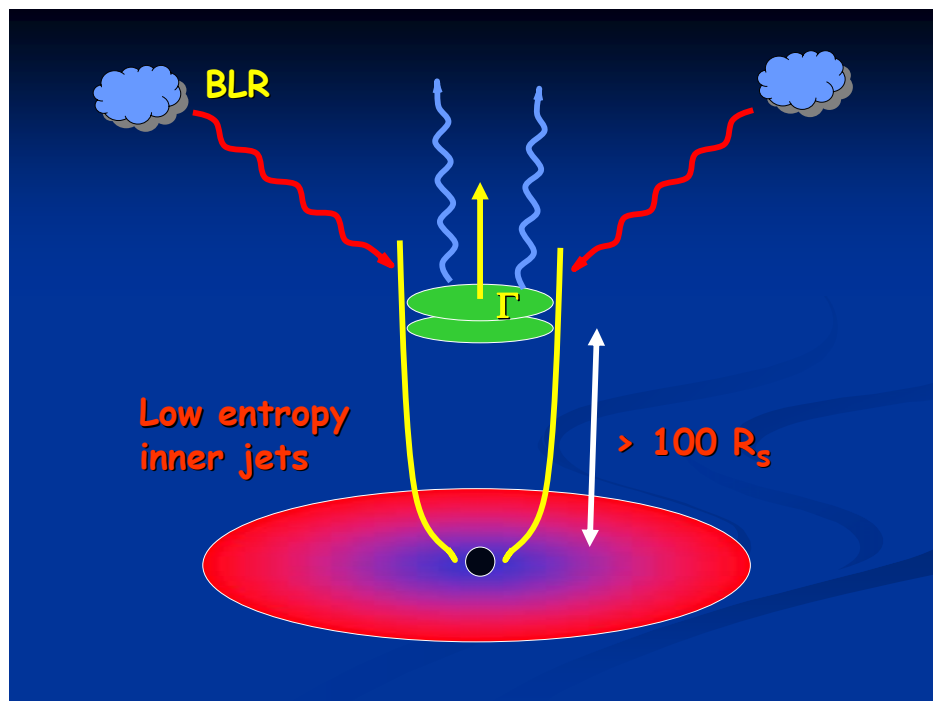
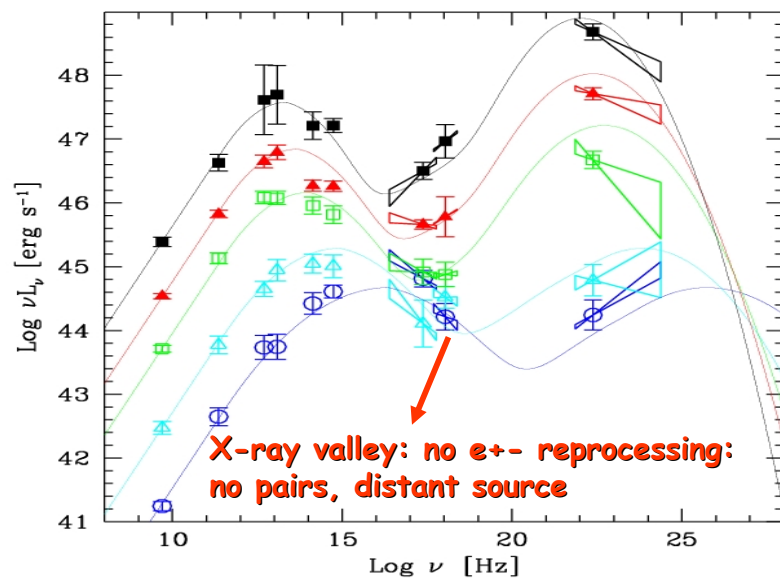
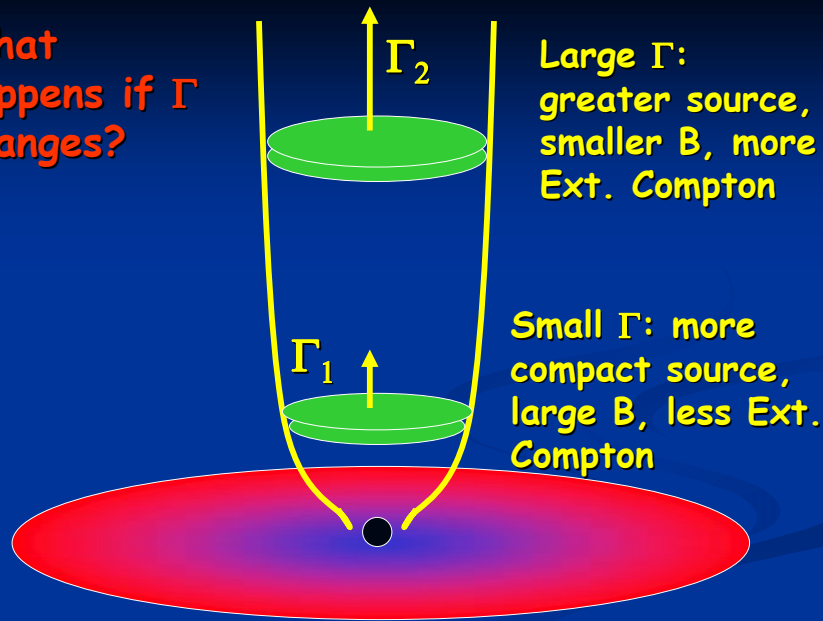


Dissipation of bulk kinetic energy in the jets of powerful blazars

K. Katarzynski & GG

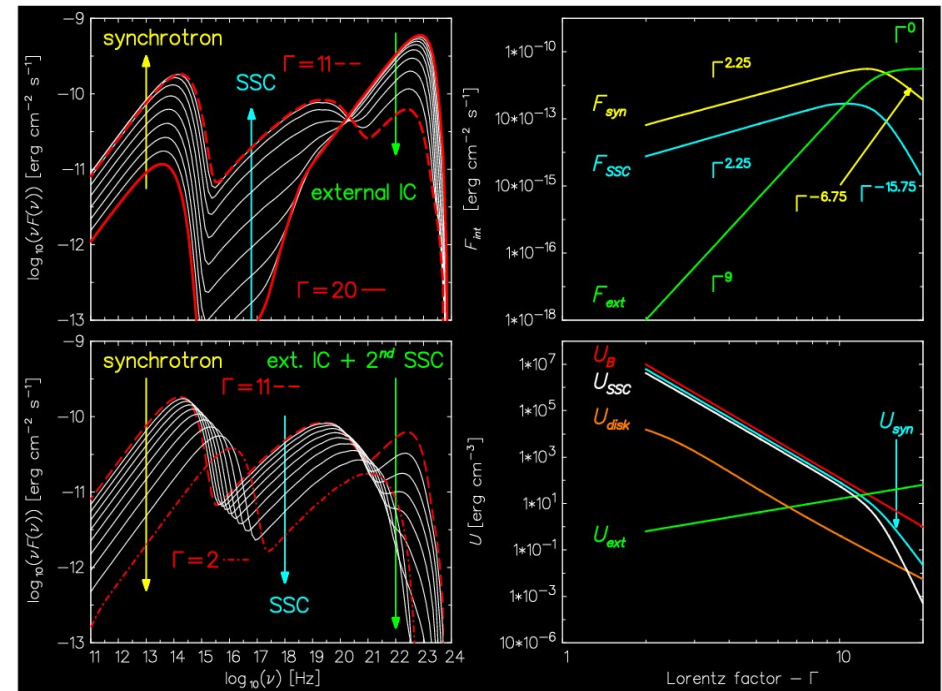
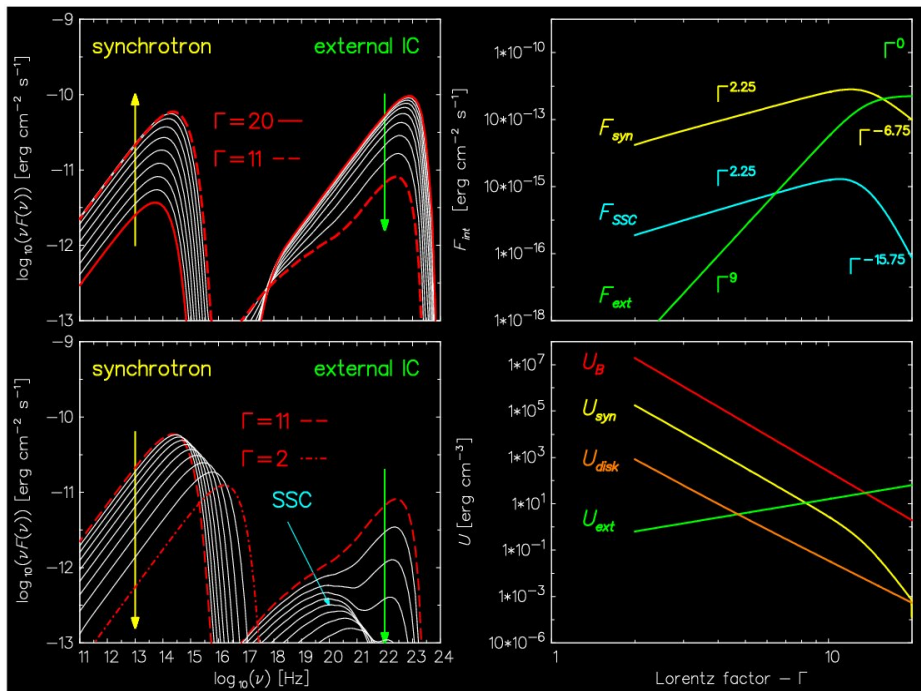


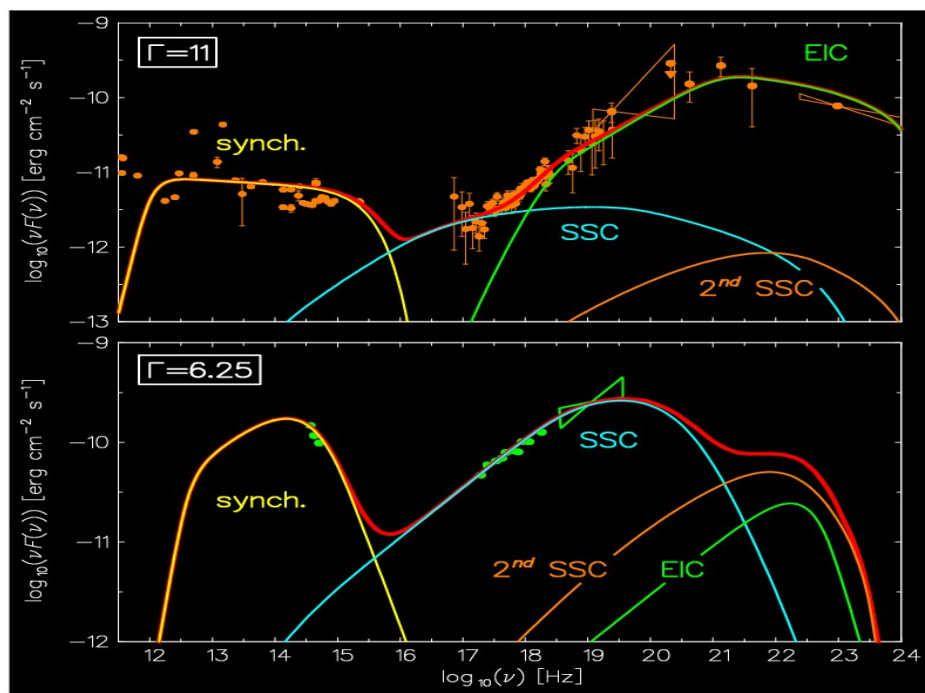
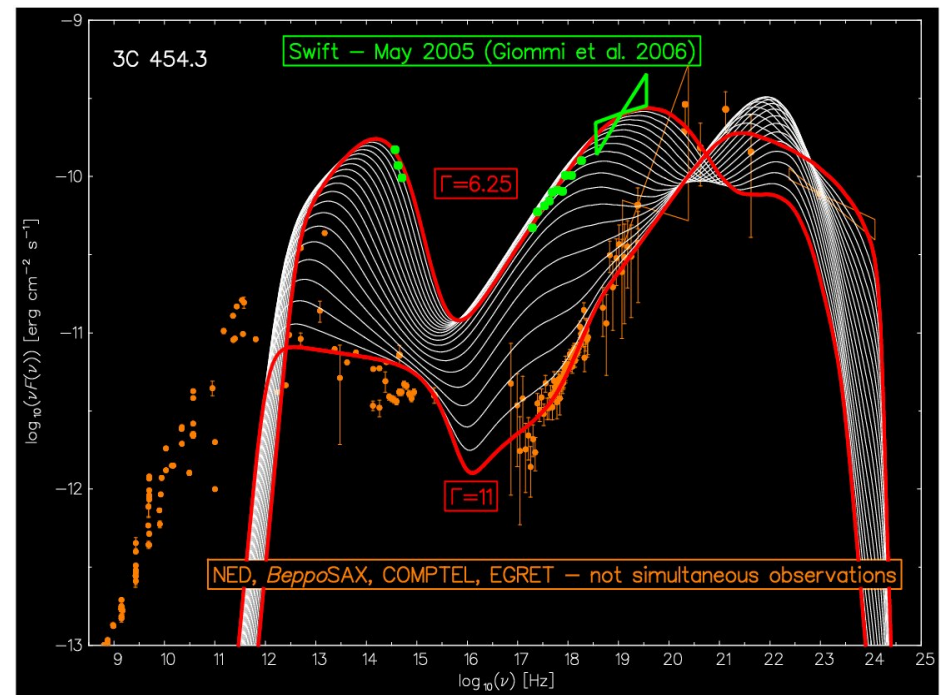
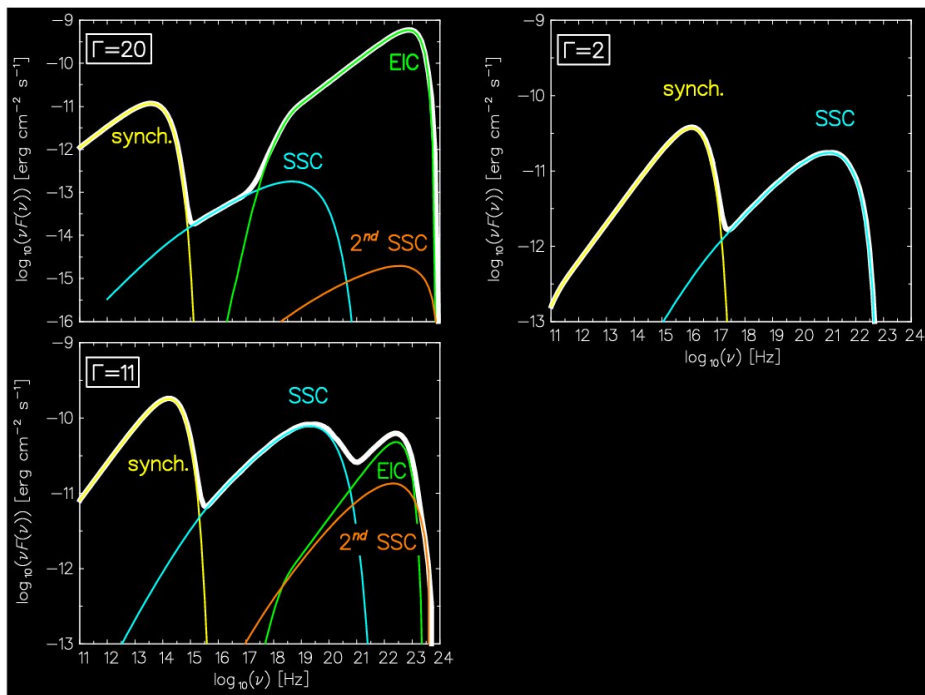
What happens if Γ changes?



Main assumptions

- The jet always produces blobs of constant bulk kinetic energy: $E = \Gamma M$ is constant
- The amount of energy given to the emitting electrons is the same
- Also the magnetic energy is the same: $E_B = V U_B = \text{constant}$
- The blob is spherical, $R = \psi z = \psi \Gamma^2 z_0$





Conclusions

1. "Early" dissipation is possible
2. Dramatic changes even if the jet works with the same efficiency
3. "Economic" way for strong variability
4. 3C 454.3 can be explained without invoking a large variation of the jet power
5. Small Γ may be the rule. May explain why EGRET detected 1/4 of strong radio blazars.
6. Easily testable by AGILE and GLAST

