

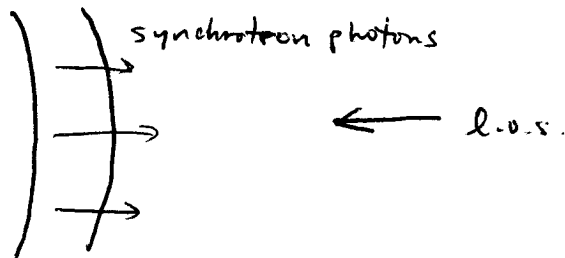
# ENIGMA Lesson 2 (5) Marscher

C. SSC losses are very difficult to calculate: they depend on retarded radiation field seen by  $e^-$ 's at each location of source.  
 But, radiation field depends on <sup>history of</sup> electron energy distribution, which depends on <sup>history of</sup> losses ... Nonlinear problem!

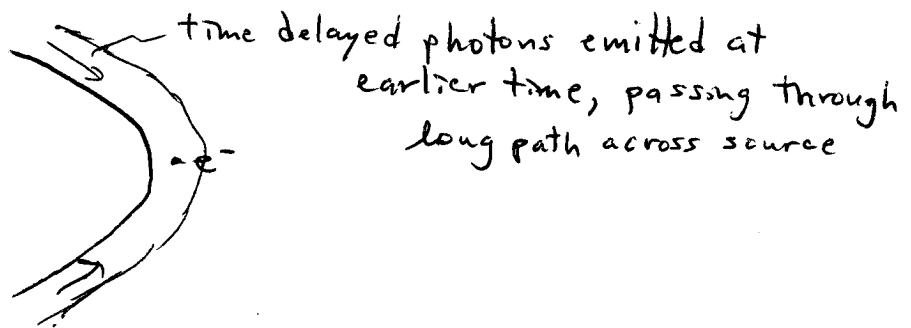
~~But~~ Easy way out (but how accurate is it?): <sup>Determine</sup> ~~the~~  $(L_x/L_{IR} + 1)$   
 observations multiply this by  $B^2$  in synchrotron loss formula  
 - Should work well for external Compton (EC) model in which <sup>seed</sup> photons are from source outside of jet

D. Electrons may see a different synchrotron photon field than observer because of geometry + time delays

(ex.) observer's view:  
 $(\theta = 0^\circ)$



electron's view:



E. SSS flux density can be predicted from observations of features in the jet with VLBI at several  $\nu$ 's - only done thus far for a few blazars

For formula, see Marscher (1983 ApJ); if I don't forget, I will add it to these notes on the ENIGMA website