SUPERLUMINAL PHENOMENA IN QSO

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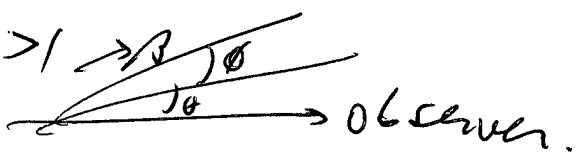
The radio spectra of QSO show that the radio emission is due to synchrotron radiation of relativistic electrons, with a power law energy distribution. Homogeneous and non-homogeneous models for the source predict maximum flux density at a frequency that depends on the flux density, angular size and redshift of the QSO. However, a large number of QSO present plane spectra in a large frequency range. An explanation for this fact is that each spectrum is formed by the superposition of the spectra of several components. This is known as the "cosmic conspiracy". These radiosources are also variable, the correlation between the variability at different frequencies is not well understood. Interferometric observations with very long base line (VLBI) confirm the existence of several components, separated by angular distances of the order of milliseconds, which correspond to linear distances of a few parsecs. Observations at different epochs along the last 10 years show that the structure of the QSO changes with time, in many cases the different components seem to separate from a fixed source at superluminal velocities. In this conference we will review the VLBI observations, some of them obtained with the Itapetinga radiotelescope and discuss several theories which try to explain the superluminal phenomena.

- $S \propto \nu^{\alpha}$
- MARSCHER, A. P., Ap. J. 219, 392 (1978)
- 3C273 → nearest quasar
- Biretta et al. Ap. J. (1986)
- Relativistic Doppler effect.

$$\frac{v}{c} = \frac{\beta \sin\theta}{1 - \beta\cos\theta} > 1$$



- shocked plasma.
- particle acceleration