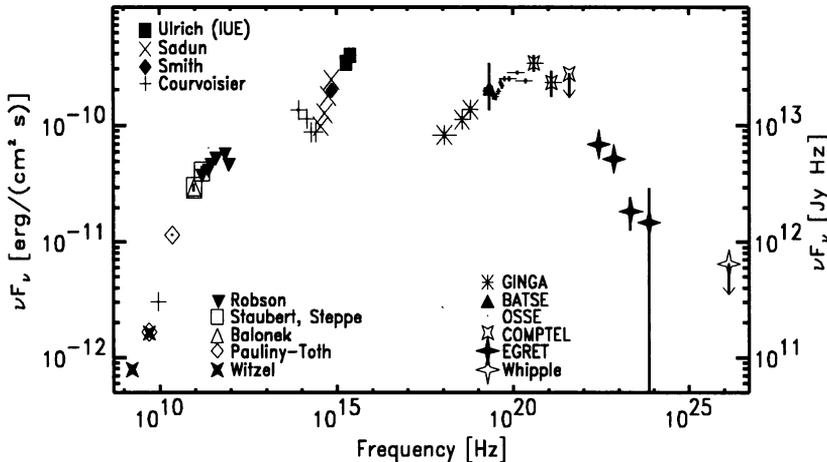


# SIMULTANEOUS OBSERVATIONS OF THE CONTINUUM EMISSION OF THE QUASAR 3C 273 FROM RADIO TO $\gamma$ -RAY ENERGIES

G. G. LICHTI, T. BALONEK, T. J.-L. COURVOISIER, N. JOHNSON, M. McCONNELL, C. von MONTIGNY, W. PACIASAS, E. I. ROBSON, A. SADUN, C. SCHALINSKI, A. G. SMITH, R. STAUBERT, H. STEPPE <sup>+</sup>, B. N. SWANENBURG, M. J. L. TURNER, M.-H. ULRICH, O. R. WILLIAMS

**ABSTRACT.** From June 15 to 28, 1991 the Compton Gamma-Ray Observatory (CGRO) observed the radio-loud quasar 3C 273. All four CGRO instruments detected radiation from this quasar in their relevant energy range (from 20 keV to 5 GeV). Simultaneous and quasi-simultaneous observations (spanning the time period May 27 - July 25, 1991) by instruments sensitive at other wavelengths have also been obtained. The data from all these observations spanning the frequency range from  $\sim 10^9$  Hz to  $\sim 10^{26}$  Hz were collected and analysed. The resulting energy-density spectrum is shown in the figure below. It shows two maxima, one in the UV, another one at low-energy  $\gamma$ -rays which have nearly the same strength (the corresponding luminosities per decade of frequency for  $H_0 = 60(km/s)/Mpc$  are  $3.2 \cdot 10^{46}$  erg/s and  $2.7 \cdot 10^{46}$  erg/s, respectively). A break of the spectrum at low-energy  $\gamma$ -rays is evident. From a detailed analysis a break energy of  $(2 \pm 1.5)$  MeV could be derived corresponding to a frequency of  $(4.8 \pm 3.6) \cdot 10^{20}$  Hz. The observed spectral break between X- and  $\gamma$ -rays is  $\sim 0.8$ , much higher than the value of 0.5 predicted by some models. A more detailed paper on this topic is in preparation (Lichti et al.).



Energy-density spectrum of 3C 273 from quasi-simultaneous observations.

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