THE QED (QUASAR ENERGY DISTRIBUTIONS) ATLAS

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Abstract. While the energy distributions of optically and radio selected quasars have the same, reproducible, mean shape in the infrared to ultraviolet region, the strength of the infrared and ultraviolet components can vary by over a decade from object to object.

Key words: Quasars

We have constructed an Atlas of Quasar Energy Distributions (QED Atlas, Elvis et al 1993 in preparation), consisting of starlight-subtracted spectral energy distributions (SEDs) from the radio to the x-ray of 47 quasars observed with the Einstein Observatory. From 100 to 0.1 microns the SEDs consist of two components, the ultraviolet 'big bump' and a broader infrared component, separated by an inflection at a median wavelength of 1.5 microns. We find:

- IRAS upper limits are included using the Kaplan-Meier estimator; this lowers the mean by a factor of three at 100 microns relative to the results of Sanders et al (1989, ApJ 347, 29).
- Flat spectrum radio-loud quasars are brighter at 60-100 microns than other types, but the mean is not otherwise dependent on type.
- The range in UV and IR component strength is a factor of 10 to 20.
- The wavelength of the IR peak is different in different objects, so the mean energy distribution is not a good representation of an individual object.

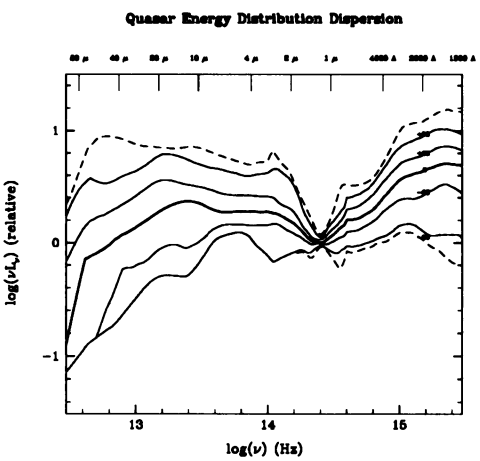

Fig. 1. The dispersion in SED shapes, normalized at 1.5 microns. A dashed line shows the sample envelope at each wavelength; the solid lines show the median and the 68 and 90 percentile contours on each side.

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