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Thesis Title	*Modelling Non-thermal Spectra at Active Galactic Nuclei*
Supervisor	A. Mastichiadis, Professor
Summary	Adopting the hypothesis that the nonthermal emission of blazars is primarily due to the acceleration of electrons, we construct a simple leptonic model in order to explain the Blazar Sequence. The acceleration process is assumed to be of the first order Fermi type and the injected electrons and photons in the emitting region of the blazar are described by spatially averaged kinetic equations. According to the leptonic scenario, the spectral energy distributions of blazars have two basic components: a low frequency component, peaking in the optical through X-rays, from synchrotron emission; and a high frequency one, peaking in the γ rays, probably originating from Compton scattering of some seed photon source, either internal (synchrotron self-Compton) and/or external to the jet (external Compton). We find an adequate description of the Blazar Sequence by assuming a wind density profile of the form $n \propto 1/r$. Higher luminosity objects have higher accretion rates, higher optical thicknesses of the wind to Compton scattering and thus higher external photon fields than the lower luminosity ones. Therefore, we present indicative Blazar Sequence models which reproduce the basic observational trends just by varying one parameter, namely the mass accretion rate.
Key words	Active Galactic Nuclei, Blazar Sequence, Leptonic Modelling, Particles Acceleration, Accretion Disks Wind
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