

Wavelength-dependent time delays in AGN accretion discs

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The idea of measuring and using wavelength-dependent time delays between the optical continuum at different EM wavelengths in order to determine AGN accretion disk structure has been known for many years. For example Sergeev et al. (2005) modelled the lag-luminosity relation with a disc reprocessing model, where time delays were caused by different light travel times from the ionizing source and regions of continuum emission. Collier et al. (1999) gave an idea how AGNs can be used in cosmology as standard candles by measuring the flux and the time delays between the optical/UV continuum in an accretion disc. Right now scientists, for example Cackett et al. 2007 fit the wavelength-dependent time delays of AGNs with a disc reprocessing models, what allows to measure the distances to the AGNs. However this method needs to be improved in order to determine more accurate estimation of cosmological quantities such as the Hubble constant. After that, it could be conveniently applied to six-color AGN lightcuves from LSST.

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