



Complex Optical/UV to X-ray spectral variability of 1H 0419–577

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Abstract. We study simultaneously observed X-ray and UV/Optical emission using seven archival XMM-Newton observations of Seyfert 1.5 1H 0419–577. All observations show strong soft X-ray excess below 2 keV, moderate broad Fe-K α and variable UV/Optical emission. We find strong correlation between X-ray and UV/Optical emission. We also find increasing fractional RMS variability amplitude (f_{rms}) towards higher energies. The estimated light-crossing timescale for UV to Optical emission is about few days to a week, respectively. The results thus suggest that the complex UV/Optical variability is possibly due to either X-ray reprocessing or Comptonization of the disc seed photons.

Keywords : galaxies: active, galaxies: Seyfert, galaxies: nuclei, X-rays: galaxies, galaxies: disc

1. Introduction

1H 0419–577 is a radio-quiet AGN at a redshift $z = 0.104$ and it is optically classified as a broad-line, UV bright and highly X-ray variable Seyfert 1.5 galaxy (Brissenden et al., 1987; Grupe, 1996; Marshall et al., 1995; Pal and Dewangan, 2013). This object has shown variable UV/Optical emission during 2000–2003. The origin of UV/Optical variability is not clearly understood. Though this can be described by various ways, for example, the variations associated to the accretion flow, X-ray reprocessing in the accretion disc, Comptonization in different regions of accretion disc, absorption or extinction due to intervening medium. Here we investigate the relationship between Optical/UV emission and X-ray emission using simultaneous Optical/UV and X-ray data.

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