X-RAY ASTRONOMY 2019
Current Challenges and New Frontiers in the Next Decade
8-13 September 2019
CNR/INAF Research Area, Bologna, Italy

Contribution ID: **114** Type: **Contributed**

Modeling the thermal reverberation in AGN

Wednesday, 11 September 2019 12:50 (15 minutes)

Several AGN have shown UV/optical variability lagging behind the X-ray emission by a few days. The simplest and most straightforward interpretation is that the variable X-ray flux from the corona illuminates the accretion disc below where it is partially reflected and observed as fast X-ray reverberation signal, and partially absorbed and thermalised in the disc, which produces a slow UV and optical reverberation signal. Since the size of the corona is very small compared to the accretion disc, and it is located in the innermost central region of AGN, it first illuminates the hottest inner parts of the accretion disc and later on its colder further out areas. Thus one expects to see the original X-ray fluctuations to be firstly followed by variations in the UV and then in the optical wavebands.
To study the thermal reverberation we have improved our X-ray reverberation KYNxilrev model to include the thermalisation of the absorbed (non-reflected) part of the incident flux. In our contribution we will discuss the results of our thermal reverberation modelling in a lamp-post corona geometry and show that the time lags observed in UV and optical wavebands are in agreement with the standard Novikov-Thorne accretion disc.

Topic

Active Galactic Nuclei: accretion physics and evolution across cosmic time

Affiliation

Astronomical Institute of the CAS

Primary authors: Dr DOVCIAK, Michal (Astronomical Institute of the CAS); Dr KAMMOUN, Elias (University of Michigan); Prof. PAPADAKIS, Iossif (University of Crete)

Presenter: Dr DOVCIAK, Michal (Astronomical Institute of the CAS)

Session Classification: ACTIVE GALACTIC NUCLEI