Contribution ID: **266** Type: **Talk**

On the Detection of an Extreme Gravitationally Redshifted Fe-line constraining the Rotation of the Super-Massive Black Hole in Mrk 876

Monday 7 December 2015 14:25 (22 minutes)

Most galaxies undergo one or more eras of Active Galactic Nucleus (AGN) activity throughout their existence. During this era their environment around the central super-massive black hole emits from X-ray to soft gamma-ray energies. Therefore these spectra and their features carry the information of the extreme gravitational conditions. However these spectral features can be transient and shifted to unexpected energies making their detection difficult.
We present our recent results of a case study on the AGN Mrk 876. The detection of a transient and extreme gravitationally redshifted Fe-line allows us to find its emission mechanism, thereby constraining the rotation of the super-massive black hole in the center of Mrk 876. This finding together with a morphological study of the source allows for conclusions on the mechanism that switched on the AGN activity in Mrk 876.

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Session Classification: 16 - Black holes