Invited lecture

BLACK HOLES IN A VIOLENT UNIVERSE

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Black Holes are fascinating enigmas - the most important engines in our Universe and still barely understood. Our COST action aims at bringing Black Hole scientists from all-over Europe together and provides a platform for joint projects and for participation in a lively exchange of knowledge. In my talk I would like to highlight the opportunities our Action is offering for the promotion of scientific networking with regard to Black Hole science!

Invited lecture

THE Fe Kα SPECTRAL LINE AND SUPERMASSIVE BLACK HOLES

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The most prominent feature observed in the X-ray spectra of a number of type 1 Active Galactic Nuclei (AGN) is a broad emission spectral line at 6.4 keV with asymmetric profile - Fe Kα. Nowadays it is widely accepted that this fluorescent/recombination line is an important indicator of accreting flows in vicinity of the central supermassive black holes of AGN, because it is emitted from a very compact region of their accretion disks, ranging from radius of marginally stable orbit up to several dozens of gravitational radii. Therefore, it can provide us some essential information about the plasma conditions and space-time geometry of these regions. Here we present a short overview of some recent investigations of several effects of strong gravity in the vicinity of supermassive black holes, as well as several parameters of the X-ray emitting region, which have the influence on the shapes and intensities of the observed Fe Kα spectral line of AGN.