

SEMINAIRE régulier du Service d'Astrophysique



THE GLORIOUS PAST OF THE SUPERMASSIVE BLACK HOLE AT THE GALACTIC CENTER UNVEILED BY XMM AND INTEGRAL

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Attention : horaire inhabituel

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10h30

The 8 year XMM-Newton monitoring of the Galactic Centre, along with Integral long surveys and several correlated multiwavelength (MWL) campaigns, has provided crucial measurements of the present and past activity of Sgr A*, the supermassive black hole (SMBH) at the galactic center. With the MWL studies of the hour-long Sgr A* X-ray, infrared and sub-mm flares, we were able to set important new constraints on the emission mechanism and on the physical conditions of the emitting plasma close to the SMBH horizon during these events. With the long term surveys we discovered the decrease over the years of the hard X-ray emission from the Sgr B2 giant molecular cloud, other complex variations and even a superluminal propagation of the neutral iron K emission line at 6.4 keV through the molecular clouds (MC) located close, in projection, to Sgr A*. These variable Fe line and hard X-ray emissions trace the recent history of Sgr A* since they are likely due to reflection and fluorescence excitation of cold molecular material by high-energy radiation emitted by the central SMBH in the past. The MC mission variations, besides to exclude alternative models for the 6.4 keV line emission based on particles interactions, can indeed be explained assuming that Sgr A* underwent a single outburst that increased its luminosity to the level of $10E39$ erg/s about 400 years ago, maintained this level of luminosity till about 100 years ago and then made it decaying to the present level of very weak activity. These results allow us for the first time to more precisely compare Sgr A* to the AGN behavior because they show that Sgr A* activity was, only 100 years back, comparable to the one of the quiescence state of low-luminosity AGNs.



Un café sera servi 15 minutes avant le séminaire

Ce séminaire aura lieu au CEA Saclay – Orme des Merisiers –bâtiment 709, Salle 003.