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ICTS Seminar

- Title : Formation of supermassive black holes in the early universe, possible role of cosmic magnetic fields and primordial black holes
- Speaker : Kanhaiya Lal Pandey, Indian Institute of Astrophysics, Bangalore
- Date : Tuesday, 12 March, 2019
- Time : 2:00 PM
- Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore
- Abstract : Various observations of ultra-bright quasars at high redshift ($z \sim 6-7$) indicate that supermassive black holes ($M \sim 10^{6-10}$ solar mass) existed when the Universe was too young to be able to make them via conventional processes such as accretion of cold gas onto a stellar mass seed black holes. Even with a comparatively more massive seed black hole (10-100 solar mass; remnant of pop III stars), a continuous Eddington limited massive accretion of cold gas for about 500-600 Myrs is needed to grow them into a billion solar mass black hole. In practice it is very hard to achieve due to various feed-back processes coming into play. In this seminar, I will present a formation scenario known as DCBH (direct collapse black hole) scenario and discuss the possible challenges with this scenario and how the presence of cosmic magnetic fields and the possible primordial black holes can alleviate these issues with the DCBH scenario.