

## Astronomy & Astrophysics Division Seminar

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Title : Photohadronic process: a novel mechanism to explain the multi-TeV flaring from high energy blazars

Speaker : Dr. Sarira Sahu (Universidad Nacional Autonoma de Mexico (UNAM), Mexico City, Mexico)

Date : 15.02.2018 (Tuesday)

Time : 16:00 Hrs

Venue : Seminar Room # 113/114 (Thaltej Campus)

### **Abstract:**

Many high-energy blazars (HBLs) are observed flaring in multi-TeV gamma-rays and the emission mechanism is not understood well. The traditional leptonic model has difficulties to explain these emissions. These high-energy gamma-rays get attenuated due to extragalactic background light. So we can't see very-high energy gamma-rays from far-off sources. We have developed a photohadronic model to explain these flarings and are able to explain most of them very well. However, our model prediction depends on the spectral energy distribution (SED) of the synchrotron self-Compton (SSC) photons which is so far not been measured but fitted using leptonic processes. In this talk I shall discuss about few flaring blazars and their interpretation using our model. Also, I shall comment on the importance of observing the photon flux in SSC band by satellite-borne

experiments to understand the emission mechanism in blazar jet. This observation will also shed more light on the production of very high energy neutrinos by IceCube and also dark matter in the mass range (few keVs to about 100 MeV).