

Invited Talk: Theories of VHE emission from pulsar magnetospheres

Tuesday, 27 October 2015 11:00 (30 minutes)

The Crab pulsar is one of the youngest pulsars in our galaxy. It exhibits the highest spin-down luminosity among the galactic neutron stars and has been observed from radio to VHE. Fermi/LAT reported a detailed phase-resolved spectrum in 0.1-10 GeV, while VERITAS and MAGIC detected pulsed photons in the double peak and the bridge phases in 25GeV-2TeV. In this talk, I will solve the particle accelerator in the Crab pulsar's magnetosphere from the Poisson equation for the electrostatic potential and the Boltzmann equations for electrons, positrons and photons, and demonstrate that these multi-wavelength observations can be reproduced by this outer-magnetospheric model from IR to VHE. I will briefly show that exactly the same method can also be applied to black-hole magnetospheres and that the recent MAGIC detection of the TeV flare from the radio galaxy IC 310 can be reproduced if the supermassive black hole is extremely rotating.

Presenter: Dr HIROTANI, Kouichi (Academia Sinica, Taiwan)

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