

# Peculiar High-Energy Gamma Rays from the Sun

*Monday 2 December 2019 15:50 (20 minutes)*

The Sun has long been expected to be a steady gamma-ray and neutrino ( $> \text{GeV}$ ) source due to constant bombardment by cosmic rays. I will discuss recent progress in studies of these solar atmospheric gamma rays with the Fermi Space Gamma-ray Telescope, and the prospects of the detecting the Sun with high-energy neutrinos. Surprisingly, the gamma-ray flux was found to be higher than the previous prediction by almost a factor of 10 and displays rich and surprising features such as large time variation, hard spectrum, strange spectral features, and morphological changes. Understandings of these gamma rays could lead to a new probe of the deep layers of the solar atmosphere and cosmic-ray propagation in the solar system. Near-future TeV gamma-ray (HAWC, LHAASO) and neutrino (IceCube, KM3NeT) observations could provide additional insights to the problem, and have interesting implications for dark matter searches with the Sun.

**Author:** NG, Kenny Chun Yu (GRAPPA. University of Amsterdam)

**Presenter:** NG, Kenny Chun Yu (GRAPPA. University of Amsterdam)

**Session Classification:** Parallel

**Track Classification:** Neutrinos