

# SAIP2014



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## **TeV Gamma-Ray Observations of the Large Magellanic Cloud**

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### **Abstract :**

The Large Magellanic Cloud (LMC) is a satellite Galaxy of the Milky Way at a distance of about 48 kpc. It harbours many potential gamma-ray sources: One of the youngest supernova remnants - SN 1987A, the most energetic pulsar - PSR J0537-6910, and the most massive star forming region in the neighbourhood of the Milky Way - the Tarantula Nebula. The High Energy Stereoscopic System (H.E.S.S.) is currently the only instrument capable of observing the LMC in gamma-rays above several 100 GeV. The part of the LMC harbouring the mentioned objects has been observed with H.E.S.S. on a yearly basis since 2003. In this talk I will present the status and recent results of the H.E.S.S. LMC observations. Gamma-ray emission has been detected from the pulsar wind nebula powered by PSR J0537-6910. From a multi-wavelength modelling it can be shown that the pulsar's progenitor star must have been very rapidly spinning, of the order of several milliseconds. Such short periods are known only for pulsars which have been spun up by a binary star. No gamma-ray emission from SN 1987A has been detected so far, which challenges models for Cosmic Ray acceleration in this object. The LMC remains an interesting target for future observations with the now extended H.E.S.S. telescope array.

### **Award :**

no

### **Level :**

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### **Paper :**

no

**Primary authors :** Dr. KOMIN, Nukri (University of the Witwatersrand)

### **Co-authors :**

**Presenter :** Dr. KOMIN, Nukri (University of the Witwatersrand)

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