



Contribution ID: 392

Type: Oral Presentation

## The contribution of photons from the circumstellar disc to gamma-gamma absorption in PSR B1259-63

Friday, 8 July 2016 10:00 (20 minutes)

**Abstract content** **&nbsp;** (Max 300 words) **<br>** **<a href="http://events.saip.org.za/getFile.py/?target=\_blank">Formatting &** **<br>** **Special chars</a>**

The gamma-ray binary system PSR B1259-63, consists of a Be star and a pulsar, and is one of only a few known systems where their spectral energy distribution peaks in the gamma-ray regime. It is also the only gamma-ray binary where the nature of the compact object is known. Near periastron, the pulsar passes through the circumstellar disc that surrounds the Be star companion. Observations around periastron show a local minimum in the TeV gamma-ray flux at periastron, when the seed photon energy density, and hence the inverse Compton flux, should be highest. This may be explained through gamma-gamma absorption. Here we show that the contribution of the photons from the circumstellar disc surrounding the Be star significantly modifies the gamma-gamma absorption and may be sufficient to explain the very high energy light curve.

**Apply to be** **<br>** **considered for a student** **<br>** **&nbsp;** **award (Yes / No)?**

No

**Level for award** **<br>** **&nbsp;** **(Hons, MSc, <br>** **&nbsp;** **PhD, N/A)?**

NA

**Main supervisor (name and email)** **<br>** **and his / her institution**

NA

**Would you like to** **<br>** **submit a short paper** **<br>** **for the Conference** **<br>** **Proceedings (Yes / No)?**

Yes

**Please indicate whether** **<br>** **this abstract may be** **<br>** **published online** **<br>** **(Yes / No)**

Yes

**Primary author:** Dr VAN SOELEN, Brian (University of the Free State)

**Co-author:** Dr SUSHCH, Iurii (North-West University)

**Presenter:** Dr VAN SOELEN, Brian (University of the Free State)

**Session Classification:** Astrophysics (1)

**Track Classification:** Track D1 - Astrophysics