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Type: Oral Presentation

Neutrino Events at IceCube and the Fermi Bubbles

Wednesday, 9 July 2014 14:00 (20 minutes)

Abstract content **(Max 300 words)** [Formatting & Special chars](http://events.saip.org.za/getFile.py/?target=_blank)

The IceCube Collaboration recently announced twenty-eight events were observed with energies above ~ 30 TeV, more than expected from atmospheric backgrounds. We discuss the detectability of the Fermi Bubbles at IceCube and show that up to 4 – 5 of the 28 events could originate from the Fermi Bubbles (FB). If the observed gamma rays from the FB are created due to the baryonic mechanism, high-energy ($> \text{GeV}$) neutrinos should be emitted as a counterpart. These neutrinos should be detectable as shower or track-like events at a Km³ neutrino detector. For a hard primary cosmic-ray proton spectrum $E^{\sup>-2.1\sup>}$ and cutoff energy at or above 10 PeV, the Fermi Bubble flux substantially exceeds the atmospheric backgrounds. For a steeper spectrum $E^{\sup>-2.3\sup>}$ and/or lower cutoff energy, to observe the neutrino flux at high significance, longer running time will be required.

Apply to be **considered for a student** **award (Yes / No)?**

Yes

Level for award **(Hons, MSc,** **PhD)?**

PhD

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

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

No

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