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## A di-Higgs Search in the $\gamma\gamma b\bar{b}$ Decay Channel Using the ATLAS Detector

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

The Higgs boson was discovered on July 4th 2012. The data taken in the 2012 run was compared to Monte Carlo generated using the Standard Model and a weak limit was found for the invariant mass of the four objects, at 300 GeV, in the Higgs to  $\gamma\gamma b\bar{b}$  channel. The confidence level at 300 GeV was calculated at approximately 3 sigma which was reduced to 2.1 sigma after the look elsewhere effect was applied. This limit is of interest as it can be tested relatively soon in the data taking period making the  $\gamma\gamma b\bar{b}$  channel an early analysis for 2015. The structure and strategy of the analysis will be discussed and optimisations shown.

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

Yes

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

PhD

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

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**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

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