**SAIP2013** 



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# Simulating Black-Hole Radiation.

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## Abstract content <br> &nbsp; (Max 300 words)

We study the emission spectrum for black-holes to better understand their thermodynamic properties. Angular momentum contributes significantly to the coupling of quantum fields to black-holes. This establishes a connection between the internal state of a black-hole and the characteristic radiation of the associated particles. We find that for each type of field there is a specific coupling to the black-hole and a characteristic emission spectrum, identified by a collection of emission frequencies called quasi-normal modes. These characteristic emission modes carry energy away from the black-hole in a way analogous to how energy is carried away from a ringing bell by sound waves. Since emission of each quantum of energy by the black-hole is statistically weighted, we use numerical simulations to build a collective particle emission signature which can be used to identify the decay of a given black-hole.

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

Yes

### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD)?

PhD

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

Alan Cornell < Alan.Cornell@wits.ac.za>

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

No

Primary author: Mr CARLSON, Warren (University of the Witwatersrand)Presenter: Mr CARLSON, Warren (University of the Witwatersrand)Session Classification: Theoretical

Track Classification: Track G - Theoretical and Computational Physics