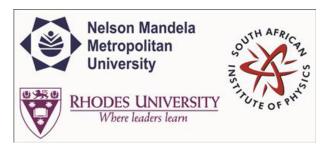
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# Monte Carlo simulations to obtain the weak magnetism term for <sup>22</sup>Na beta decay

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

The study of <sup>22</sup>Na beta decay offers an opportunity to test the Standard Model via measurements of the  $\beta$ - $\gamma$  angular correlation. A previous measurement of this correlation yielded a non-zero value, indicating the need for a higher-order correlation to the decay, beyond the allowed V-A approximation. On assuming the Conserved Vector Current (CVC) hypothesis for weak interactions and using the magnetic dipole M1 width of the analog 2<sub>1</sub><sup>+</sup> state in <sup>22</sup>Na, one obtains an unexpectedly large "second-class" form factor that is in disagreement with the Standard Model prediction

This talk describes an analysis of data obtained from a prior <sup>21</sup>Ne(p, $\gamma$ ) experiment to obtain the M1 width of the 2<sub>1</sub><sup>+</sup> state of interest in <sup>22</sup>Na. We aim to use the M1 width and an independent measurement of the  $\beta$ - $\gamma$  angular correlation to obtain a higher order Standard-Model-allowed weak magnetism term, in an attempt to explain the observed discrepancy mentioned above. I will also describe some Monte Carlo simulations performed to extract E2/M1 mixing ratio from these data.

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MSc

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

Prof Smarajit Triambak smarajit@gmail.com University of the Western Cape

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

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**Primary author:** Mr PHUTHU, Lutendo (University of the Western Cape)

**Co-authors:** DIAZ VARELA, Alejandra (University of Guelph); GARCIA, Alejandro (University of Washington); WREDE, Christopher (Michigan State University); JAMIESON, Drew (University of Guelph); ORCE, Nico (University of the Western Cape); DUNLOP, Ryan (University of Guelph); SMARAJIT, Triambak (University of the Western Cape)

**Presenter:** Mr PHUTHU, Lutendo (University of the Western Cape)

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