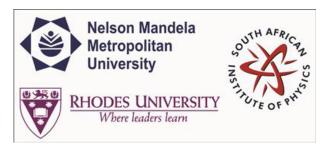
SAIP2015



Contribution ID: 26

Type: Oral Presentation

Monte Carlo simulations to obtain the weak magnetism term for ²²Na beta decay

Wednesday, 1 July 2015 09:40 (20 minutes)

Abstract content
 (Max 300 words)
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The study of ²²Na beta decay offers an opportunity to test the Standard Model via measurements of the β - γ 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 2₁⁺ state in ²²Na, 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 ²¹Ne(p, γ) experiment to obtain the M1 width of the 2₁⁺ state of interest in ²²Na. We aim to use the M1 width and an independent measurement of the β - γ 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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Session Classification: NPRP

Track Classification: Track B - Nuclear, Particle and Radiation Physics