

Measurement of the Electron-Antineutrino Correlation in Neutron Beta Decay: aCORN Experiment

Wednesday, 30 May 2018 16:30 (20 minutes)

The aCORN experiment uses a novel “wishbone asymmetry” method to measure the electron-antineutrino correlation (a -coefficient) in free neutron decay that does not require precision proton spectroscopy. aCORN completed two physics runs at the NIST Center for Neutron Research. The first run on the NG-6 beam line in 2013–2014 obtained the result $a = 0.1090 \pm 0.0030(\text{stat}) \pm 0.0028(\text{sys})$, a net uncertainty of 3.8%. The second run on the new NG-C high flux beam line promises an improvement in precision to $<2\%$. Details of the experiment and data analysis will be presented.

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Collaboration name

aCORN

Funding source

NSF, DOE, NIST

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Session Classification: Tests of Symmetries and the Electroweak Interaction

Track Classification: TSEI