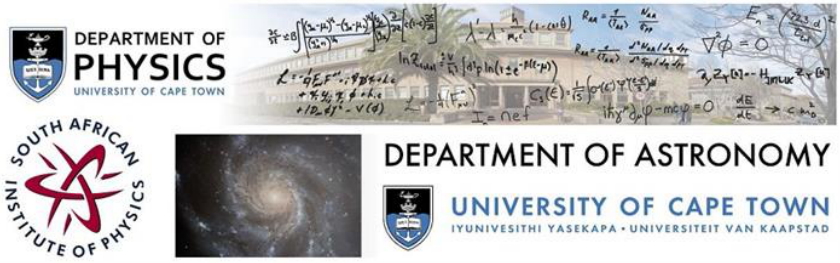

Contribution ID: **565** Type: **Oral Presentation**

PLENARY: Studies of the Shapes of Heavy Pear-Shaped Nuclei at ISOLDE

Friday, 8 July 2016 12:10 (1 hour)

Abstract content
   (Max 300 words)
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For certain combinations of protons and neutrons it is expected that the shape of atomic nuclei can undergo octupole deformation, which would give rise to reflection asymmetry or a “pear shape”. In this talk I will review the historic evidence for reflection asymmetry in nuclei, and describe how recent experiments carried out at ISOLDE, CERN have found new examples of pear-shaped nuclei. I will discuss how the new measurements are constraining nuclear theory and how they can help test extensions of the Standard Model. I will also discuss future prospects for measuring nuclear shapes using accelerated beams of radioactive ions. Experiments are being planned that will exploit heavy-ion beams from the new HIE-ISOLDE facility at CERN. Eventually these beams will be injected into a storage ring (TSR); the emerging cooled beams will allow direct measurements of two-body reactions with unprecedented precision.

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Session Classification: PLENARY

Track Classification: Track H - Plenaries