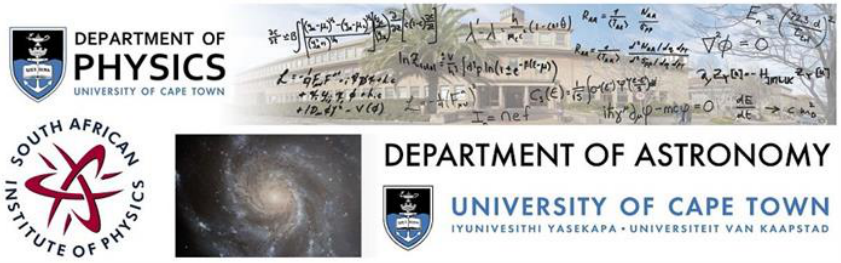

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Particle and gamma decay studies: an update on the K600

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Abstract content
   (Max 300 words)
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The K600 at iThemba LABS is a kinematically corrected QDD magnetic spectrometer for light ions. This facility, combined with the excellent beam quality from the iThemba LABS accelerators, is one of only two such facilities worldwide capable of measuring medium energy hadronic scattering and reactions at very small scattering angles, including zero degrees, with low background and high energy resolution.

Medium-energy hadronic scattering and reactions at zero degrees are notoriously difficult to measure, but highly sought after due to the advantage of being very selective to excitations with low angular momentum transfer. This simplifies the analysis of the many possible contributions to the spectra due to the complex nature of the nuclear interaction. The addition of coincident particle and gamma detection to the zero degree capability enhances the selectivity of such a facility. Such a capability can open up a host of new opportunities to be explored, allowing rare events to be probed.

Since the establishment of a dedicated Coincident Array of segmented detectors for K600 Experiments (CAKE) in 2014 numerous successful particle decay experiments were performed. Some results of this new facility will be presented, as well as details of the development of a gamma coincidence detection capability in the form of BAGEL, a Beautiful Array of Germaniums for Energy and L value determination.

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