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Alpha-Gamma Angular Correlation in ^{209}Po Using TIGRESS Integrated Plunger FRANK(TONGAN) WU, AARON CHESTER, THOMAS DOMINGO, KRIS STAROSTA, JONATHAN WILLIAMS, Simon Fraser University, GREG HACKMAN, JACK HENDERSON, ROBERT HENDERSON, PANU RUOTSALAINEN, TRIUMF — Alpha decay provides a powerful tool to study structure of heavy nuclei with $Z > 83$ (above Pb and Bi). When a gamma ray is emitted following the alpha decay, the alpha-gamma angular correlation can be used to assess the height of Coulomb and centrifugal barriers, which determine the rate of the alpha-particle tunnelling. This correlation can also be used as a tool for spin and parity assignments for the nuclear states involved in the decay. For that reason, an apparatus to study this correlation has been set up at TRIUMF, Canada's National Laboratory for Particle and Nuclear Physics, through coupling of the CsI wall of the Tigress Integrated Plunger (TIP) device and TRIUMF-ISAC Gamma-Ray Escape Suppressed Spectrometer (TIGRESS). Alpha-gamma sources can be positioned at the centre of the TIP chamber, which is installed within the centre of TIGRESS. In this study, the sensitivity of the setup is investigated from a comparison of measured and predicted alpha-gamma angular distribution from ^{209}Po decay. So far, around 8000 events with extremely high signal-to-noise ratio have been identified by applying alpha-gamma time correlation and CsI pulse shape identification. Initial angular groups between TIP and TIGRESS detector pairs have been assigned and analyzed. Efficiency of each angular group is currently being investigated. Analysis and results will be presented and discussed.

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