# Atomic Physics at the 5MV Tandem at Demokritos: the UoC APAPES* project

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University of Crete (UoC) has initiated the research initiative APAPES [1] funded by THALES* and in collaboration with the rest of the coauthors has already set up a new experimental station with a dedicated beam line for research on atomic collisions physics. This new experiment concerning zero-degree Auger projectile spectroscopy is located at the 5MV TANDEM accelerator of the National Research Center "Demokritos" in Athens and has been put together to perform, high resolution studies of electrons emitted in ion-atom collisions. The set up consists of a hemispherical deflector analyzer (HDA) with a 2-dimensional position sensitive detector (PSD) combined with a doubly-differentially pumped gas target.

Our goal is to perform a systematic isoelectronic investigation of K-Auger spectra emitted from collisions of pre-excited and ground state He-like ions with gas targets using novel techniques [2].

So far, various experiments on mixed state ($1s^2$, $1s2s\,^3S$) $C^{4+}$ ions beam collisions with various gas targets, including SIMION [3] simulations, have been performed [4]. In the near future, a terminal gas stripper and a gas/foil post stripper will be installed in the accelerator extending its range of available charge states and the possibility to produce either pure ground state as well as mixed state beams with different metastable fractions vital to APAPES.

Here, we report on progress to date on the APAPES project, the description of the setup, results to date and plans for the near future.

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