

The APAPES installation at the tandem accelerator laboratory of NCSR “Demokritos”. Current status and future perspectives*

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The APAPES installation [1] at the tandem accelerator laboratory of the NCSR "Demokritos" provides a solid research platform for Atomic Physics involving fast ion-atom collisions. The workhorse of the installation is the electrostatic hemispherical spectrograph and the utilized high-resolution technique of zero-degree Auger projectile spectroscopy (ZAPS) [2]. Additional special techniques have been developed exploiting pre-excited beams that facilitate our investigations [3]. Thus, currently, fundamental collisional processes such as single electron capture (SEC), electron transfer-excitation (TE), electron capture to the continuum (ECC) and electron loss to the continuum (ELC) are at the focus of our investigations [4,5]. Recently, the upgrade of the installation has been initiated under the support of the IKYDA2020 program [6]. This upgrade will further increase the arsenal of the APAPES installation by offering the capability of performing projectile-ion—recoil-ion and electron-ion coincident measurements. Moreover, a toroidal spectrometer, a kind donation from the GSI research center, is expected to be included in our existing installation and will offer access to measurements of angular dependencies for the collisional processes under study. The APAPES current achievements, as well as the near future research plans and perspectives, following the ongoing upgrade, will be discussed.

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