MAT Ionenstrahlworkshop 2025
September 22-24, 2025 at GSI, Darmstadt

Contribution ID: **89** Type: **Oral**

ASCII: Apparatus for Surface Physics and Interfaces at CERN's Ion Implantation Chamber

Wednesday, September 24, 2025 10:00 AM (20 minutes)

The Apparatus for Surface Physics and Interfaces at CERN (ASPIC) has been installed in the solid state physics part of the ISOLDE experimental hall. Operating at ultra-high vacuum (UHV $\leq 10^{-8}$mbar) ASPIC's versatility was used to study metallic surfaces, the magnetic behavior of thin films and an interface evolution, as well as employing radioactive isotopes and a variety of surface thin film fabrication and modification techniques.

Currently under design, a new chamber called the Apparatus for Surface Physics and Interfaces at CERN's Ion Implantation Chamber (ASCII) embodies an upgrade to ASPIC, enabling tunable ultra-low energy ($>$ 20 eV) implantation of radioisotopes in UHV $\leq 10^{-9}$mbar.
Capable of controlling implantation depth in the order of several Ångström,
precise positioning of probes including ^{111m}Cd and ^{204m}Pb in two-dimensional materials (graphene, transition-metal dichalcogenides), (multi)ferroic materials, nanoparticles and topological insulators is possible. A first successful test using ASCII to implant ^{111}Ag was conducted at the Universität of Göttingen.

While ASCII is yet to be commissioned for operational use, it will soon be available for the wide community of collaborators.
Being placed inside the ISOLDE facility, ASCII presents itself as a unique setup holding great potential for the investigation of surfaces and interfaces in nuclear condensed matter physics.

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Session Classification: Talks

Track Classification: Annual Workshop on Ion and Particle Beams (Ionenstrahl Workshop)