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VITO (Versatile Ion-polarized Techniques Online)

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The VITO (Versatile Ion-polarized Techniques Online) medium scale experiment is a modification of the existing UHV line at ISOLDE. The VITO beamline has been under construction since 2014 and is installed permanently in the low-energy part of the ISOLDE hall. When fully commissioned, the unique experimental setup will open up numerous possibilities for carrying out multidisciplinary studies in the areas of biophysics, nuclear and solid state physics, and fundamental interaction physics [1,2,3].

The VITO beam line will deliver ISOLDE beams in two different modes providing either spin-polarized atoms or ions [4], or non-polarised ions to three fully independent experimental end stations, spanning in vacuum from atmospheric pressure down to UHV (below 10⁻¹⁰ mbar).

The first end station is dedicated to UHV collections and measurements performed in the ASPIC chamber [5] mainly utilized for solid state physics and material science applications. The middle end station is reserved for travelling experiments and/or the testing of the beam polarisation. The third end station is for β-NMR spectroscopy or β-γ asymmetry mainly for biophysics and is the major addition/upgrade to the VITO beamline together with the spin polarization setup. This upgrade will make it possible to implant and study liquid biosamples [6,7].

An overview will be given of the current status and for future perspectives.

References:

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