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Mass measurements at the extreme of the nuclear landscape with ISOLTRAP

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Key in the establishment of the traditional concepts of nuclear shells, binding-energy studies were also pivotal to the early realization of the demise of the traditional shell closures away from stability [1]. Extensive effort has followed to examine the classical signatures for magicity in exotic nuclei and more than three decades later, the robustness of all major shell closures has been assessed [2]. Along the way, a number of subshells (e.g N = 32 in ^{52}Ca) have even been shown to exhibit localized magic behaviour [3].

Over the past year, the online Penning-trap mass spectrometer ISOLTRAP [4,5] has dedicated most of its experimental effort to the study of two topical regions for the study of the shell-evolution phenomenon. On the one hand, extending the study of the N = 32 sub-shell closure from the cadmium (Z =20) to the scandium (Z =21) chain was attempted. On the other hand, a mass-measurement campaign was dedicated to the study of neutron-deficient indium isotopes in the vicinity of the doubly-magic ^{100}Sn. This campaign performed at extreme of the nuclear landscape was successful to measure $^{99-101}$In and allows the study of the Z=N=50 shell closure in close proximity with the proton drip-line. This contribution will present highlights from both measurement campaigns.

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