Status report of the TRIGA-TRAP experiment

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Superheavy elements exist exclusively because of quantum-mechanical shell effects. With increasing proton number the Coulomb repulsion increases rapidly and these shell effects gain in importance for heavy nuclei, as they can increase the nuclear lifetimes by many orders of magnitude. The effect is most pronounced in the vicinity of shell closures. One of the relevant shell closures was identified at $N = 152$. Signatures for shell closures include a sudden drop in the two-neutron separation energy S_{2n}. This can experimentally be determined by high-precision measurements of the masses of nuclides in the vicinity of the shell closure. The TRIGA-TRAP experiment is a double Penning-trap mass spectrometer used to perform high-precision mass measurements of long-lived transuranium isotopes and short-lived fission-products at the research reactor TRIGA Mainz. It thus ideally complements the on-line capabilities of the SHIPTRAP setup at GSI Darmstadt. Prompted by a recent recharge of the TRIGA-TRAP superconducting magnet, the experimental setup was upgraded and recommissioned. Currently, measurements to investigate systematic effects are ongoing. A measurement campaign of several transuranium isotopes is planned for the next months. The status, latest results, and an outlook for the TRIGA-TRAP facility will be presented.