



EINLADUNG
zum
VERA - SEMINAR
von

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Approaching the Island of the Heavyweights

Presently, the Periodic Table comprises 118 elements. The heaviest ones owe their existence to nuclear shell effects providing additional stability against spontaneous fission. Theoretical models even predict an *island of stability* of long-lived superheavy elements for $Z \approx 114$ and $N \approx 184$. Such elements feature atomic and nuclear properties that may differ drastically from lighter ones. Nuclear models predict, for example, a central depression in the proton density distribution of such nuclei. Atomic and chemical properties may change due to the strong influence of relativistic and quantum electrodynamic effects. However, small production rates and often short half-lives make the experimental investigation challenging. Nonetheless, pioneering experiments at the GSI Darmstadt, Germany, have demonstrated that even Penning trap mass spectrometry and laser spectroscopy of the heaviest elements are feasible. This allowed mapping nuclear shell effects and investigating the nuclear size and shape for $Z \approx 102$ and $N \approx 152$. I will summarize the status of these activities and discuss some recent results.

Donnerstag, 7. Juni 2018, 16:30 Uhr

**1090 Wien, Währinger Str. 17, "Kavalierstrakt",
1. Stock, Victor-Franz-Hess Hörsaal**