

H a b i l i t a t i o n

Freie Universität Berlin

Fachbereich Physik

Arnimallee 14, 14195 Berlin (Dahlem), FB Raum (1.1.16)

Im Zuge seines Habilitationsverfahrens wird

Herr Dr. Alexander Schnegg

HZB

am **Mittwoch, d. 21. November 2018** um **16.15 Uhr**
seinen öffentlichen wissenschaftlichen Vortrag über das
Thema:

„New Magical Islands in Sight“

halten.

Anschließend findet vor Mitgliedern des Fachbereichsrats und den Mitgliedern der Habilitationskommission eine Aussprache statt.

Der Vorsitzende der Habilitationskommission

Abstract:

The new elements nihonium (atomic number $Z = 113$), moscovium ($Z = 115$) tennessine ($Z = 117$) and oganesson ($Z = 118$) were added to the periodic table in 2016. These super heavy elements are well separated from the rest of the lighter, naturally abundant or artificially created, elements. The new island of stability came into reach through the employment of neutron rich ^{48}Ca beams in combination with actinide targets. The existence of stable super heavy elements was predicted much earlier, based on the nuclear shell model. The latter describes the motion of nucleons in a common potential. The orbits of nucleons bunch together and form shells. So-called magic nuclei with filled shells are very stable and may exist even in the super heavy element region. Research in super heavy elements is driven by a number of exciting scientific questions: What are the largest atoms that can exist or what is the end of the periodic table? Do very long-lived super heavy elements exist and what are the chemical properties of super heavy elements? Herein we review new knowledge related to these questions gained from the realization of novel accelerator experiments and the discovery of new elements.