

# Großes Physikalisches Kolloquium an der Universität zu Köln

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## *Alchemy in the 21st century: the quest to understand super heavy elements*

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16<sup>45</sup> Uhr / HS III



A chemical element is characterised by the total number of positively charged protons in the atomic nucleus. The interplay between the attractive short range strong force and the repulsive long range Coulomb force leads to a limit in the number of protons and neutrons that can be bound in a nucleus. Today single atoms of elements up to  $Z=118$  have been created in the laboratory.

Super heavy nuclei are so finely balanced on the edge of stability that they provide extremely sensitive testing grounds for nuclear models. With the advent of modern detection systems structural investigations are possible in systems ever further from stability, including the determination of shape and single particle structure, chemical properties, and the unique identification of the precise atomic number of the produced nuclei via X-ray fingerprinting.

