THE PHYSICS COLLOQUIUM

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Bernoulliborg 5161.0253

The heaviest elements in the spotlight

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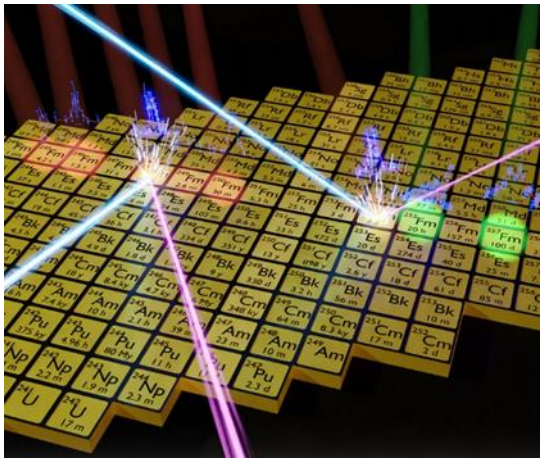

The quest for long-lived isotopes of superheavy elements on the so-called "island of stability" has motivated interdisciplinary research in this area for almost 50 years. The heaviest elements are of interest to nuclear and atomic physicists as well as to chemists due to their peculiar properties. While nuclear shell structure effects are responsible for their very existence stabilizing them against spontaneous disintegration, the structure of their electronic shells is affected by strong relativistic effects leading to different atomic and chemical properties compared to their lighter homologs. The atomic structure can be probed by laser spectroscopy which is a powerful tool to unveil fundamental atomic and nuclear properties. The lack in atomic information on the heavy element of interest, the low production rates, and the rather short half-lives make experimental investigations challenging and demand very sensitive experimental techniques. Recent results with dedicated experimental investigations were obtained for fermium (Fm, Z=100) and nobelium (No, Z=102) isotopes which will be discussed together with the perspectives for laser spectroscopy investigations in even heavier elements.

Join us for coffee starting 3:30 p.m. Refreshments will be served after the lecture.
For more information contact the host: Julia Even [j.even@rug.nl]
Website: http://www.rug.nl/research/vsi/colloquia/