Plenary Talk PV III Tue 8:15 U Audimax

Exploring Exotic Elements - all about Astatine and Actinides as accessible from Laser Mass Spectrometry — •Klaus Wendt — Johannes Gutenberg-Universität Mainz

The UN has proclaimed 2019 as the International Year of the Periodic Table of Chemical Elements, celebrating the 150th anniversary of this significant discovery by Dmitry Mendeleev. Today the table with its broad implications in astronomy, biology, chemistry, geosciences, physics, and even medical research extends up to element 118. Nevertheless, for a number of elements listed, which either have no stable isotopes or are produced only artificially, still today fundamental relevant quantities have not been determined precisely or are entirely missing. These gaps concern atomic and nuclear structure, isotope and isomer effects, and include even basic parameters like ionization potential or electron affinity. Resonant laser mass spectrometry is the method of choice for investigations on rare species. In the range around proton numbers Z=85-95 a variety of results has been reported during the last years, not only filling these blanks but also enabling analytical lowest-level determination of radiotoxic contaminations.