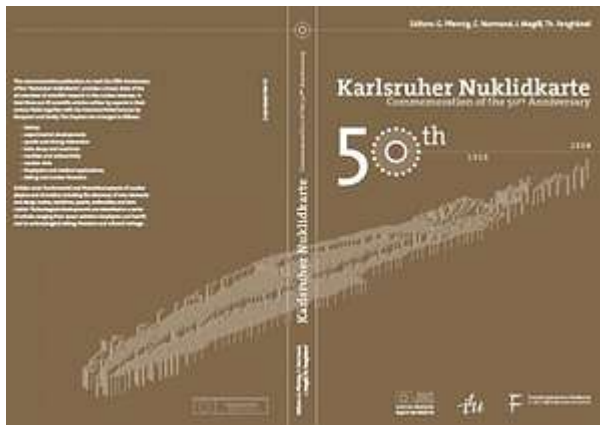


09.12.2008



The Karlsruhe Nuclide Chart:

A milestone in tracking the new elements since 1958

The Institute for Transuranium Elements of the European Commission's Joint Research Centre (JRC), celebrated the 50th anniversary of the Karlsruhe Nuclide Chart on 9th December 2008 in the Gartensaal of the Karlsruhe Castle. JRC Director General, Roland Schenkel, together with world-renowned scientists, among those the President of the World Federation of Scientists and past President of the NATO Science Committee for Disarmament Technology, Antonino Zichichi, gave a global overview of the chart and illustrated its use with concrete examples and applications. For instance, the use of decay data to find cures for cancer and viruses, explanations about the content of the universe and its secrets, and the way to determine the age of Oetzi or the Turin shroud were presented. The programme also included general presentations in the fields of astrophysics, radiochemistry, nuclear physics, nuclear data. A special commemorative publication to mark the 50th Anniversary of the Karlsruhe Nuclide Chart was officially presented. It provides a broad, state of the art overview of scientific research in the nuclear sciences. In total there are 30 scientific articles written by experts in their various fields together with the historical Nobel lectures by Becquerel and Soddy. Articles cover fundamental and theoretical aspects of nuclear physics and chemistry including the discovery of new elements and decay modes, neutrinos, quarks, antimatter, and dark matter. Technological developments are described in a series of articles ranging from space radiation biophysics and health care to archaeological dating, forensics and cultural heritage.

The first edition of the "Karlsruher Nuklidkarte" was published in 1958 and contained information on approximately 1300 nuclides grouped in 102 chemical elements. Since then, more than 1650 new nuclides have been discovered and the elements 103 to 116 and 118 have been identified. In addition, new decay modes have been detected including double beta decay, proton decay, beta delayed particle emission, cluster emission, bound beta decay from highly ionised atoms, and more recently two proton decay. Starting with the 7th edition, the Institute for Transuranium Elements of the European Commission's Joint Research Centre has taken over the management of the Chart by providing support and development of the current and future

editions. The current 7th edition contains information on approximately 3000 nuclides. According to theoretical predictions, at least 6000 "bound" nuclides are believed to exist between the proton and neutron drip-lines. "With this commemorative publication, we have reached the "halfway" point on the journey to map out the nuclear landscape" said Prof. Thomas Fanghänel, Director of the Institute for Transuranium Elements. "As to the future, it will require at least another 50 years to finalise this map and complete the nuclide chart!" he stated during the presentation of the book. As the journey continues, scientists worldwide look forward to future editions of the "Karlsruher Nuklidkarte" to provide a concise record of the many exciting discoveries which lie ahead and will be made by future generations.

Order Details

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Further Information can be obtained from the following websites:
<http://www.karlsruhenuclidechart.net>
<http://www.nucleonica.net>