

Friday, 15 December 2006

EU's Joint Research Centre in collaboration with the Forschungszentrum Karlsruhe publishes extended periodic table of the elements for nuclear science

The European Commission's Joint Research Centre, Institute for Transuranium Elements, has published a new edition of the Karlsruhe Nuclide Chart, an extended periodic table of the elements that displays all known isotopes and their radioactive data. First developed in 1958 and now in its 7th edition, the Karlsruhe Nuclide Chart is a globally recognised research and teaching tool in the area of nuclear science. The new 7th edition coincides with the 50th anniversary of the Forschungszentrum Karlsruhe (Germany).

What are nuclides and why do we chart them?

For almost 50 years, the Karlsruhe Nuclide Chart has provided scientists and students all over the world with structured, accurate information on the half-lives (the time it takes for half of the material to disintegrate) and decay modes of radionuclides, as well as the energies of emitted radiation. In science, the term *nuclide* is used to categorise an atom (stable or unstable) characterised by the number of protons and the number of neutrons in its nucleus. All isotopes of an element contain the same number of protons but different numbers of neutrons in the nucleus. The Karlsruhe Nuclide Chart is unique in that it offers a full description of the radioactive attributes of an element and its isotopes, providing an unmatched overview of current knowledge in nuclear science.

What's new about the 7th edition of the Karlsruhe Nuclide Chart?

The 7th Edition of the Karlsruhe Nuclide Chart contains new and updated radioactive decay data on 618 nuclides. In total, nuclear data on more than 2962 experimentally observed nuclides and 692 isomers is presented. Most recent values of the atomic weights, isotopic abundances and cross sections are included together with the thermal fission yields for both ²³⁵U and ²³⁹Pu. The accompanying brochure has been revised to include a history and overview of nuclear science and the Chart's explanatory text is now available in 6 languages (English, German, French, Spanish, Chinese and Russian).

The Karlsruhe Nuclide Chart offers a broad range of applications

In addition to the traditional physical sciences, such as health physics and radiation protection, the Karlsruhe Nuclide Chart is widely used in the life and earth sciences, such as biology, medicine, agriculture and geology. The Chart makes a regular appearance in training programmes and nuclear science reference books around the world, and is increasingly accepted as an important learning tool for high school physics students.

The 7th Edition of the Karlsruhe Nuclide Chart is now available in two formats: a brochure with a fold-out chart or a wall chart.

For more information:

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Karlsruhe Chart of the Nuclides (bulk discounts available):
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Brochure + Fold-out Nuclide Chart:

European Commission
DG Joint Research Centre
Institute for Transuranium Elements
Luxembourg: Office for Official Publications of the European Communities
2006 – 44pp. – 21.0 x 29.7 cm & 20 pp. fold-out chart
ISBN 92-79-02175-3
25,30 € + VAT + postage

Wallchart:

European Commission
DG Joint Research Centre,
Institute for Transuranium Elements
Luxembourg: Office for Official Publications of the European Communities
2006 – 0.96m x 1.36m
ISBN 92-79-02431-0
15,10 € + VAT + postage