INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

KCVS The King's Centre for Visualization in Science

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Isotopes Matter!

New Interactive Electronic Version of the IUPAC Periodic Table of the Elements & Isotopes

How do we know what the temperature of our planet was a million years ago, to better understand climate change? Where did Őtzi the Iceman live as a child and an adult? What evidence gives doping agencies the gold standard to determine whether testosterone in an athlete's sample comes from doping? How do we obtain 3D images of tumors in soft tissues?

The answers to all of these questions and many more can be revealed through a deeper understanding of isotopes of the elements. ***Isotopes matter!***

On August 17, 2016, IUPAC and the King's Centre for Visualization in Science will release a new interactive electronic periodic table of the elements and isotopes in a special plenary session at the International Conference on Chemistry Education in Kuching, Malaysia. The interactive periodic table is accompanied by a set of peer reviewed educational resources (www.isotopesmatter.com) that guide users through the new periodic table and explain the scientific evidence that provides the basis for our understanding of how many isotopes there are for each element, what their relative abundances are, and how atomic weights are determined for each element. As we recognize that the atomic weights of some elements vary in nature, IUPAC no longer lists these atomic weights with a single value, but rather with an interval.

These new resources are created for educators and students at secondary and post-secondary levels, and to inform the public about the many uses of isotopes in our lives. They are based on educational practices that encourage engaged and active learning by students.

The new IUPAC interactive electronic periodic table and accompanying educational materials were created by a partnership between an IUPAC Project team of scientists and educators, and researchers at the King's Centre for Visualization in Science, and build on the work of a previous IUPAC project team to create a print version of the Periodic Table of the Isotopes.

"This project responds to requests by educators and students for resources highlighting the importance of isotopes in our lives, and that give students help in using interval atomic weights for elements. www.ISOTOPESMATTER.com brings free engaging and interactive learning resources to the fingertips of students and educators around the world," says Task Group Co-Chair Peter Mahaffy, Professor of Chemistry at the King's University in Canada, and co-director of the King's Centre for Visualization in Science.

And Norman Holden, retired Research Coordinator of the High Flux Beam Reactor (HFBR) and the Brookhaven Medical Research Reactor (BMMR) and a Guest Scientist at the National Nuclear Data Center (NNDC) of Brookhaven National Laboratory in New York, adds: "*It's great when scientists and educators work together to create a vehicle to provide students with an understanding of fundamental scientific facts and accomplish this internationally*. "

Following the global launch on August 17, 2016, the new IUPAC interactive electronic periodic table and accompanying resources can be accessed at www.isotopesmatter.com. A print version of the periodic table of the isotopes and elements is available at http://ciaaw.org/periodic-table-isotopes.htm. Further details will be published in the peer-reviewed IUPAC Journal, *Pure and Applied Chemistry*.

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