IUPAC and the Organisation for the Prohibition of Chemical Weapons Take Partnership to New Level

On 1 December 2016, the Director-General of the Organisation for the Prohibition of Chemical Weapons (OPCW), Ambassador Ahmet Üzümcü and IUPAC President, Professor Natalia Tarasova, signed a Memorandum of Understanding (MOU) pledging to enhance cooperation to keep abreast of developments in chemistry, responsibility and ethics in science, and education and outreach.

OPCW Director-General Ahmet Üzümcü (right) and IUPAC President Natalia Tarasova signed an MOU pledging to enhance cooperation.

Ambassador Üzümcü remarked, "Promoting responsible science is a crucial endeavour to advance the goals of the Chemical Weapons Convention. Without scientists, there is no disarmament. IUPAC's unwavering commitment to a world permanently free of chemical weapons demonstrates the strength of this norm and the conviction of chemistry researchers and practitioners globally to protect it".

Professor Tarasova expressed, "Through the cooperation between our organisations, we look to help humanity achieve Sustainable Development Goals in a world free of chemical weapons and in a world in which achievements in chemical science and technology are used only for the benefit of humankind and the environment".

The MOU opens a new chapter and underscores the long-standing and productive relationship between OPCW and IUPAC.

Read more about IUPAC cooperation with OPCW in the President's Column page 2 or see iupac.org News section.

www.iupac.org/iupac-opcw-take-partnership-new-level/

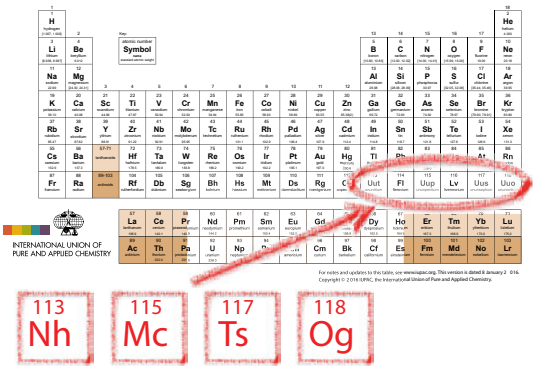
IUPAC Announces the Names of the Elements 113, 115, 117, and 118

On 28 November 2016, the International Union of Pure and Applied Chemistry (IUPAC) approved the name and symbols for four elements: nihonium (Nh), moscovium (Mc), tennessine (Ts), and oganesson (Og), for element 113, 115, 117, and 118, respectively.

Following a 5-month period of public review, the names, proposed earlier by the discoverers, have been approved by the IUPAC Bureau.

Keeping with tradition, the newly discovered elements have been named after a place or geographical region, or a scientist. The ending of the names also reflects and maintains historical and chemical consistency: "-ium" for elements 113 and 115, as for all new elements of groups 1 to 16, "-ine" for element 117, belonging to group 17, and "-on" for element 118 as an element belonging to group 18. The recommendations were published in the December 2016 issue of *Pure and Applied Chemistry* (doi.org/10.1515/pac-2016-0501). (The earlier provisional recommendations with the explanation of the names were published in CI Sep 2016, p. 30; no changes to the proposed names and symbols were introduced following the public review period).

Comments from the general public during the 5 month public review period were many. Apart from many full agreements, comments were received suggesting other names, in some cases accompanied by petitions from large groups of people. However, these suggestions could not be accepted, given the fact that under the current guidelines only the discoverers have the right to propose names and symbols. Questions were also received about the pronunciation of the names and the translations into other languages. Members of the chemistry community also raised the concern that Ts is one of the two commonly used abbreviations for the tosyl group. Recognizing, however, that many two-letter abbreviations have multiple meanings—even in chem-



istry, and for example Ac and Pr— the conclusion was made that the context in which the symbols are used makes the meaning unambiguous.

"Overall, it was a real pleasure to realize that so many people are interested in the naming of the new elements, including high-school students making essays about possible names and telling how proud they were to have been able to participate in the discussions," said Professor Jan Reedijk, President of the Inorganic Chemistry Division. He added "It is a long process from initial discovery to the final naming, and IUPAC is thankful for the cooperation of everyone involved. For now, we can all cherish our periodic table completed down to the seventh row."

"The names of the new elements reflect the realities of our present time" said IUPAC President Prof Natalia Tarasova, "universality of science, honoring places from three continents, where the elements have been discovered—Japan, Russia, the United States—and the pivotal role of human capital in the development of science, honoring an outstanding scientist—Professor Yuri Oganessian".

The exploration of new elements continues, and scientists are searching for elements beyond the seventh row of the periodic table. IUPAC and the International Union of Pure and Applied Physics (IUPAP) have recently established a new joint working group, whose task will be to examine the criteria used to verify claims for the discovery of new elements.

See full release in the News section of iupac.org
www.iupac.org/iupac-announces-the-names-of-the-elements-113-115-117-and-118/

IUPAC Periodic Table of the Elements—Updated Release

An updated version of the Periodic Table has been released on 28 November 2016 which includes the recently added elements 113, 115, 117, and 118 and all standard and conventional atomic weights.

The standard atomic weights (abridged to five significant digits) and the conventional atomic weights are extracted from the most recent 2013 review published in *PAC* Vol. 88, No.3, pp. 265-291 (http://dx.doi.org/10.1515/pac-2015-0305). For ytterbium, the standard atomic weight is based on the 2015 review. An interval in square brackets provides the lower and upper bounds of the standard atomic weight for that element. For users needing an atomic-weight value for an unspecified sample without regard to the uncertainty, the conventional values are provided. No values are listed for elements which lack isotopes with a characteristic isotopic abundance in natural terrestrial samples. See *PAC* for more details or visit Commission II.1 at www.ciaaw.org. Visit www.isotopesmatter.com for an interactive version of the Periodic Table of the Elements and Isotopes.

A reprint of that table is included as this issue's back cover tear-off page. To download the printable (PDF) version, see the following webpage: www.iupac.org/what-we-do/periodic-table-of-elements

Gender-based Harassment in the Practice of Science

On the occasion of the International Day for the Elimination of Violence against Women—25 November 2016, www.un.org/en/events/endviolenceday**—the International Council for Science (ICSU) called for more effective strategies to promote gender equality and equitable access to all resources in the practice of science, notably in the area of field research, and to remove barriers to the full participation in science by women.**

This call emerged from a workshop organized by the ICSU Committee on Freedom and Responsibility in the Conduct of Science (CFRS), the Mexican Academy of Sciences, and the ICSU Regional Office of Latin America and the Caribbean on "Gender Issues in Field Research: Mobility and Internationalization of Science," held in Mexico City on 27 April 2016. (see *CI* Sep 2016, p. 37; doi.org/10.1515/ci-2016-0527)

Gender-based harassment can limit the mobility of women researchers and contribute to the under-representation of women in senior careers, as scholars and as leaders in science and industry. Such barriers have the potential to harm the integrity of the research community, relationships amongst its practitioners, and victims' commitment to scientific research and scholarship. The advisory note "**Mobility and Field Research in the Sciences: Gender Equality and Prevention of Harassment**" is available online.

This advisory note, based on the ICSU's Statute 5 on the *Principle of Universality of Science*, commits the council and its members to supporting scientists' freedom of movement, association, expression, and communication, and to promoting equitable and non-discriminatory access to science.

www.icsu.org/freedom-responsibility/advisory-documentation