



Standard atomic weights of three technology critical elements revised

The IUPAC Commission on Isotopic Abundances and Atomic Weights (IUPAC CIAAW) regularly reviews literature data, leading to the identification of advancements in measurement science which leads to formal revisions of the recommended atomic weights of the elements (known as the standard atomic weight). This occurs rather infrequently, each element being affected, on average, once every two decades.

The CIAAW met in August 2023 in the Hague, the Netherlands under the chairmanship of Johanna Irrgeher (Montanuniversität Leoben, Austria). Following this meeting, the CIAAW recommends changes to the standard atomic weights of gadolinium (Gd), lutetium (Lu), and zirconium (Zr) based on recent determinations and evaluations of their terrestrial isotopic abundances:

- **gadolinium:** to 157.249 ± 0.002
from 157.25 ± 0.03
- **lutetium:** to 174.96689 ± 0.00005
from 174.9668 ± 0.0001
- **zirconium:** to 91.222 ± 0.003
from 91.224 ± 0.002

The CIAAW notes that the standard atomic weight of gadolinium was last revised in 1969 based on isotopic abundance measurements made in the 1940s. Since then, several studies dedicated to the measurement of the isotopic composition of gadolinium have been published which warrant a revised standard atomic weight. For lutetium and zirconium, there are more recent measurements available and their standard atomic

weights were last revised by IUPAC in 2007 and 1983, respectively. These changes and considerations will be published in *Pure and Applied Chemistry* and can be found online at the website of the IUPAC Commission on Isotopic Abundances and Atomic Weights (ciaaw.org).

The importance of determining precise atomic weights has long been recognized, resulting in the creation of the International Atomic Weights Committee in 1899, now known as the IUPAC Commission on Isotopic Abundances and Atomic Weights.

<https://iupac.org/standard-atomic-weights-of-three-technology-critical-elements-revised/>

IUPAC-Soong Prize for Sustainable Chemistry

IUPAC raised \$1 million as an endowment to create a significant award recognizing advances in Sustainable Chemistry.

In a signing ceremony hosted on 11 October by Wen-Chang Chen, President of the National Taiwan University, IUPAC President Ehud Keinan and Raymond Soong, the founder of LITEON Technology, signed an agreement to secure an endowment fund devoted to the recognition of excellence and progress in Sustainable Chemistry. The restricted funds will establish an annual prize of 30 000 US dollars, which will be first presented next year during the IUPAC World Chemistry Congress in Kuala Lumpur, Malaysia. The awardee will also give a public lecture at National Taiwan University within two years of receiving the Prize.

Soong, a strong supporter of academia, recognizes the pivotal role played by a university education in nurturing talent. He hopes that this Award will not only catalyze focus on global emerging challenges but also attract top-tier scholars and researchers from around the world to address these issues.

"IUPAC is grateful for this outstanding donation and humbled by the challenge. The annual award will recognize exceptional scientists who have achieved breakthrough discoveries in sustainable chemistry worldwide. The IUPAC-Soong Prize will encourage further research to meet the most pressing challenges jeopardizing humanity and Planet Earth," said Ehud Keinan.

Raymond Soong said: "Sustainable development is essential for the planet's and humanity's survival as we confront significant threats across social, economic, and environmental dimensions. Addressing these challenges



IUPAC President Ehud Keinan and Raymond Soong display a signed agreement to secure an endowment fund devoted to the recognition of Sustainable Chemistry.

requires a concerted effort from governments, businesses, universities, and individuals. Recognizing the crucial role of education in cultivating talent and advancing sustainable development, I am pleased to offer my support through IUPAC, in the hope of uniting academia and various sectors of society to pursue the shared vision of global sustainability. In addition to the formal Prize ceremony, we'll happily host the Prize laureate in Taiwan, thereby exposing young Taiwanese scholars to the cutting edge of sustainable chemistry."

Wen-Chang Chen said: "As sustainability becomes an increasingly relevant issue globally, how to use fundamental science to address these challenges has become increasingly critical. I am very pleased to see IUPAC's initiative in establishing an Award of Sustainable Chemistry to inspire chemists to join this effort. NTU is proud to play a role by providing a platform for exchanging academic insights and practical solutions."

About Raymond Soong

Raymond Soong, a pioneer of Taiwan's optoelectronics industry, is a crucial figure craving the path of core optoelectronic and critical electronics component developments. Soong founded LITEON Technology in 1975, which set the trend for Taiwan's in-house LED R&D and production, and LITEON Technology later became Taiwan's first listed electronics company in 1983. Leading LITEON for almost half a century, Soong's humbleness and discipline nurtured LITEON's unique corporate culture of diligence and reliability. Coming a long way since its humble beginnings, Taiwan, known as a high-tech island, now plays a key role in the global supply chain. LITEON continues to build a multinational scope, seeking new opportunities and demonstrating its resilience and grassroots venture, and Soong plays a monumental role in it.

For further information, contact Ehud Keinan, President, IUPAC, at ekeinan@iupac.org or visit <https://iupac.org/what-we-do/awards/iupac-soong-prize/>

Green Chemistry for Life grants presented to Top Young Scientists

The United Nations Educational, Scientific and Cultural Organisation (UNESCO), in partnership with PhosAgro Group and IUPAC, has awarded research grants in the field of green chemistry to the world's top young scientists for the eighth consecutive year. The first grants to talented young scientists for green chemistry research were awarded 10 years ago, in September 2014.

This year's ceremony was held in Beijing as part of the 10th IUPAC International Conference on Green Chemistry, sponsored by PhosAgro. The conference, co-organised by the Chinese Chemical Society and the Institute of Chemistry of the Chinese Academy of Sciences, included around 1,000 delegates from 56 countries. As part of the conference, the international scientific symposium "PhosAgro/UNESCO/IUPAC: Green Chemistry for Sustainable Development and Better Living" was also held.

The award ceremony and symposium were attended by Lidia Brito, UNESCO Assistant Director-General for Natural Sciences; Ehud Keinan, President of IUPAC; Christopher Brett, Vice-President of the Scientific Advisory Board of UNESCO's International Basic Sciences Programme (IBSP) and past-President of IUPAC; Shahbaz Khan, Director of UNESCO's East Asia Regional Office; Natalia Tarasova, Director of the Institute of Chemistry and Sustainable Development at the D.I. Mendeleev University of Chemical Technology