

# Editorial

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*N Sathyamurthy, Chief Editor*

First of all, on behalf of all of us at *Resonance* and on my own, I wish all the readers of and contributors to *Resonance* a very Happy New Year!

The first good news is that articles published in *Resonance* will carry their DOI numbers from February 2019 issue, facilitating easy access to the online articles. Secondly, 2019 has been declared as the 'International Year of the Periodic Table'. Feynman seems to have remarked that if all the information in the world was to be lost (at the end of World War III, let us say), he would somehow like to pass on the concept of atoms to the next generation. If all the chemical information in the world is to get lost, I would like to, somehow, pass on the Periodic Table to the next generation.

It is amazing how much information about ALL the elements in the universe (as far as we can tell), is contained in the Periodic Table. It makes me wonder how Mendeleev managed to arrange elements known at that point in time in this manner. His conviction of elemental periodicity was so strong that he ignored some of the anomalies in the order based on atomic masses, went on to correct some of the masses and predict the existence of certain elements. His stand was vindicated by subsequent measurements and discoveries of new elements like eka-boron (scandium), eka-aluminium (gallium), eka-silicon (germanium) and others.

My generation learned the short form of the Periodic Table. The present generation knows the long form, which is based on the atomic number of elements and the electronic configuration of atoms. It is fascinating to learn how trans-uranium elements were discovered/synthesized, and how they fit into the current form of the Periodic Table reproduced on the back cover of this issue.

It is a pity that the committee for awarding the first Nobel Prize in



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Chemistry decided to keep Mendeleev out by invoking the will of Alfred Nobel that the Prize would be awarded for the 'latest' discovery that would be of value to the mankind. Forget about Nobel Prize, Mendeleev continues to live in the hearts of all chemists.

Physicists dream about grand unification (of theories). Chemists have accomplished it in the form of the Periodic Table. To sum up, the properties of all the known elements in the universe in one table is no mean achievement. From a philosophical point of view, the Periodic Table does not distinguish between organic and inorganic chemistry. It does not distinguish between living and non-living entities. It does not distinguish between us and other forms of life. Underneath all of them lie the elements in the Periodic Table. We can go one step further; we know that matter and energy can be converted into each other. Therefore, it is not surprising that one element could be converted into another through 'artificial transmutation'. Rutherford had apparently remarked that only physics was science, and everything else was stamp collecting. Ironically, he got the Nobel Prize in chemistry and not in physics.

For the present generation, anything that is important has to be available on a smartphone. In this context, young readers would be pleased to know that the Royal Society of Chemistry, London has released an App for the Periodic Table. My generation used to memorise the names of the elements. The new generation has them, literally, at their fingertips!

The issue of *Resonance* in hand is dedicated to the Periodic Table, and Abhinav Godavarthi and S Sivaram trace the origin, history and development of this centrepiece in chemistry. While Govind Krishnaswami and Himalaya Senapati introduce the readers to the classical three-body problem in physics, Kavita Dorai explores the various facets of brain imaging using the fMRI technique. In his article, Frank H Shu discusses the pertinent dangers of fossil fuel burning and the challenges of stopping and reversing climate change. The issue also carries a brain racking article on fillable fractions by Jyotirmoy Sarkar and a book review by R Murugavel.

