

Special issue on Chemical Crystallography

Editorial

It was in 1912 that Max von Laue discovered the fact that solid materials deflect X-rays. This phenomenal finding heralded the dawn of X-ray crystallography, which allowed the solids to be seen and interpreted in terms of regularly ordered atoms/molecules and connectivity between the atoms. Laue was awarded Nobel prize in 1914. The very next year's Nobel prize in physics was shared by the father-son duo, namely William Henry Bragg and William Lawrence Bragg, for analysis of crystal structures using X-rays. X-ray crystallography has since become a subject that is deeply distributed in several disciplines. Its importance may be gauged by the fact that at least 25 Nobel prizes in the last 100 years have gone to the discoveries that depend to a large degree on X-ray crystallography. UNESCO declared 2014 as International Year of Crystallography (IYCr) to recognize the importance of the subject and commemorate the first Nobel prize for this quintessential area. It turns out that 2014 also marks 50th anniversary of the Nobel prize to Dorothy Hodgkin for her Himalayan contributions to determination of the structures of prominent biomolecules such as penicillin, vitamin B12 and insulin.

One of the major objectives of the UNESCO in the current year has been to popularize—with the help of IUCr—the subject and create awareness of how crystallography is pivotal to the advancement of science. It is indeed appreciable that the Indian Academy of Sciences, Bangalore took early note of the distinction for X-ray crystallography this year and planned to bring out a special issue on "Chemical Crystallography" with articles that exemplify the use of crystallography in different hues of chemical research in India. We, indeed, feel humbled at having been entrusted with the responsibility of bringing out this special issue in the Journal of Chemical Sciences. X-ray crystallography is being practiced in India from the early times of development of this branch of science. We requested Prof. T. N. Guru Row at the Solid State and Structural Chemistry Unit (SSCU), IISc., Bangalore to reflect on the historical evolution of X-ray crystallography and offer his perspective of this discipline today and how it holds for the scientific research in India in future. Prof. Guru Row has witnessed the development of X-ray crystallography in India from the days when one structure was solved over a period of one year or more to now when the same is done within a few hours. His perspective of 'X-ray crystallography: Past, present and future' is included in this issue so that one may appreciate how a subject that is so indispensable in today's research has evolved in our country. It allows us to

recognize and also pay respect to the peers, who have made possible the way that the crystallography is practiced today with their sheer commitment, passion and dedication.

In so far as the contributions to this special issue, which is titled 'Chemical Crystallography', is concerned, We invited contributions from active researchers, who utilize X-ray crystallography not merely to determine structures, but are concerned with structural insights to probe a phenomenon, uncover new modes of assembly, correlate structure with some function, develop new materials with a particular ordering, exemplify host-guest recognition, etc. In other words, the articles were envisaged to emphasize the importance of X-ray crystallography in different aspects of chemical research. We are thankful to all the authors for accepting our invitation, contributing readily, and putting up with the rigors of the editorial process. Virtually, every invitation that we extended has translated into an article. We sincerely believe and wish that the collection of articles in this issue sufficiently showcases the panorama of chemical science involving X-ray crystallography in India.

We note with pride that Prof. Gautam R. Desiraju, an eminent scientist who has pioneered the area of 'crystal engineering', happens to be the president of IUCr this year. Although it is a rare coincidence, it indeed is a great privilege for the country in general and for practitioners in particular. He has been kind to write the foreword for this issue, we are immensely grateful to him.

We profoundly thank Prof. N. Periasamy, the editor-in-chief, for his guidance and the editorial team members for their help during this process, which lasted several months.

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