

Uncommonly Eclectic f Elements



Karen Hindson
Editor EurJIC

As so often happens in Science, names of new discoveries are based on a misconception. By the time the truth is known, the name has been established and popular usage prevents putting the record straight. This is also the lot of the rare earths, which are not so rare as originally thought. Nevertheless, this name for the f elements can be considered apt – the wide range of fields in which their properties have found application is rare indeed.

Probably the first contact of a chemistry student with the f elements stems from the more commonly known long-lived radioactive isotopes and their application in nuclear power generation. This aspect is not covered in this Cluster Issue. The rich coordination chemistry and redox properties have led to many applications in catalysis. Molecular resonance imaging in medicine exploits their paramagnetism. The rare-earth elements are incorporated into many devices such as superconductors, lasers, magnets, and batteries to name a few. The colour produced by phosphors is tuned with rare-earth dopants. This versatility in many technologies underlines their economic importance. Although many of the effects can be reproduced by other elements, substitutes are often not as effective. All these applications are active fields of research in inorganic chemistry and can be found scattered through the pages of any year of EurJIC.

The wide coverage of all aspects of f-element chemistry presented at the 7th International Conference on f Elements provided an excellent opportunity for EurJIC to cluster papers on the rare earths to reflect the broad scope that these elements have to offer for inorganic chemistry. The enthusiasm of our Guest Editor, Gerd Meyer, who was prepared to call from the United States soon after his arrival to discuss a pressing aspect of the issue, was much appreciated. He has collected 34 articles from leading experts that will enrich your research. We timed the issue to coincide with the International Conference on Rare Earth Development and Application and hope that the

mix of the presentations there and these peer-reviewed papers will stimulate lively discussions among the delegates. Whether your interest lies in unusual methods of synthesis, fascinating structures, doped materials, intermetallics, the effects that rare earths can achieve in catalysis, biological applications, luminescence or MRI, or merely in curiosity about the chemistry of the f elements, we wish you a satisfying read. You will find chemistry to interest inorganic chemists, materials chemists, solid-state chemists, theoreticians or even organic chemists.

An issue like this rests on the cooperation of many people. First and foremost I wish to thank Gerd Meyer most heartily for his work, which stretches from the initial forming of the idea and invitation of the authors through to providing the background photograph of the cover picture. With his support we were able to bring you a colourful issue without cost to the authors. The value of the articles lies in the high quality of the research presented to you here by our international authors. Less universally visible is the time and intellectual input of the peer reviewers drawn from all over the world, who

added their ideas and suggestions to provide you with the satisfaction of reading an optimally presented paper with no loose ends. To all of them, my sincerest thanks. From the many outstanding contributions, four authors were selected to contribute to the cover – Anja-Verena Mudring highlights an aspect of her review on ionic liquids, John Corbett's work represents the solid-state community with the structure of an Ln–Bi–Te ternary system, Norbert Mitzel presents a structure that elucidates the intricacies of bonding, and Chunhua Yan's graphic points to the correlation of structure and properties. Finally, my team in the editorial office work hard to provide you with personal service from the first contact through to the final production of a bumper issue. Their unwavering support and infectious delight in a job well done in spite of the additional care that a cluster issue requires is much appreciated. All this comes together to provide you with a scintillating experience of the f elements. Enjoy!

**Something
for
everyone**

Karen J. Hindson