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The Fascination of Polyoxometalates

POMs stimulate eclectic interests

The incredible range of possibilities to vary the structures of polyoxometalates (POMs) coupled with their stability gives this type of molecule potential for a vast variety of applications. It is thus no wonder that the interest in these inorganic compounds is thriving in centres all over the world. Not only inorganic chemists are involved: physical chemists, electrochemists, material chemists, supramolecular chemists, theoretical chemists and bioinorganic chemists have all discovered their fascination. This is an excellent reason for EurJIC to publish a cluster issue on this topic. Such an issue is able to spotlight aspects of polyoxometalate chemistry that would perhaps not normally appear primarily in an inorganic chemistry journal. EurJIC's hope is that this broad view will stimulate ideas for interdisciplinary research.

In Ulrich Kortz we found an enthusiastic Guest Editor, who offered the International Polyoxometalate Symposium in Bremen at the end of July 2009 to form the platform on which this issue is built. The international experts in polyoxometalates and all fields around this core who gathered at this conference agreed to submit their cutting edge research for this overview of the topic. As is essential for a Society journal (EurJIC is owned by thirteen European societies in the ChemPubSoc Europe conglomerate of chemical societies), all contributions have been peer reviewed. We would like here to thank all authors and peer reviewers for their part in producing this excellent issue.

Guest Editor Ulrich Kortz

The first polyoxometalate was discovered in 1826. The initial interest was in the structure of these new compounds and the first structure was elucidated in 1934. Still today scientists are pushing back the boundaries of the structural chemistry of polyoxometalates, but in questions that today are in the centre of creative endeavour. Can polyoxometalates form supramolecular aggregates? Can they be built into metal–organic frameworks? Can chiral POMs be built? Can new hetero-elements be built into the structures to tune the properties? Can POMs be built into films? Can the stability be tuned by the environmental conditions? How are these structures formed during synthesis? All these topics are covered in this issue.

Stimulating structures and applications

Structures without applications would leave POMs with only an academic significance. This issue also addresses these significant points. The electrochemical properties make POMs ideal as catalysts for redox reactions. The endeavours to create chiral structures are moving the discipline into the design of enantioselective catalysts. Surprising magnetic properties have been studied, promoting the understanding of magnetism in POMs. Developments that could lead to the use of these compounds in devices or in medicine are also highlighted. All this and more can be found in the pages of the 34th issue of 2009.

Ulrich Kortz has been a constant advisor at all stages. A student of his, Rami Al-Oweini, designed the cover with the contributions of Marcella Bonchio, Oxana Kholdeeva, Josep Poblet, Michael Pope and Toshihiro Yamase. I was particularly pleased that he could subtly build in the logo of Jacobs University together with the internationally known emblem of Bremen – can you find it? My sincere thanks go to Ulrich Kortz for his humour and support throughout the production of this issue. We hope that EurJIC succeeds in its aim to promote new ideas for all involved in polyoxometalate chemistry and to contribute to the recognition that this field has earned.

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