Special Issue

Bonding in Actinide and Lanthanide Complexes

Message from the Guest Editors

The characterisation of bonding in complexes of actinides and lanthanides is at the forefront of contemporary f-element research. A combination of strong electron correlation, weak crystal fields, and substantial relativistic effects results in exceedingly complex electronic structures found nowhere else in the periodic table. Whilst the high radioactivity of the actinides renders synthetic work extremely challenging, recent advances in spectroscopy and simulation allow bonding and therefore chemical reactivity in these fascinating complexes to be probed and rationalized in unprecedented detail. Elements of the lanthanide series are characterized as hard Lewis acids whose chemistry is dominated by the +3 oxidation state, in contrast to the actinides, for which the range of accessible oxidation states is much larger (+2 to +7 for Pu). Recent reports have nonetheless shown that the two series can exhibit similarities in their bonding, and much is yet to be understood. We therefore invite you to contribute to this Special Issue on actinide and lanthanide bonding to demonstrate the rich chemistry of these elements to the wider community.

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Inorganic chemistry remains a lynchpin of modern chemistry, not only embracing the function and reactivity of combinations of most elements of the periodic table, but also providing a footing for studies of materials, catalysts, drugs, fuels and industrial chemicals. Arguably, the role and reach of inorganics in society have never been as great as today. Adventurous research at the heart and at the extremes of inorganic chemistry is vital to further advances and Inorganics offers authors the opportunity to publish exciting new research in an open access format.

Editor-in-Chief

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