POM-BASICS Summer School

"Polyoxometalate Chemistry for Fundamentals and Applications"

La Rochelle-France, June 13-15th 2022

Session 2- Mastering Redox Properties of POMs for Electron-Transfer and Storage

Approaches to Rational Chemical Reduction of POMs

Trainer: John Errington, (Newcastle, UK)

Abstract of the course:

Electrochemical studies have revealed a fertile landscape of electron-rich POMs that has yet to be fully explored in terms of chemical reactivity. Progress in this area requires the development of reliable and systematic methods for the preparation, isolation and characterisation of POMs in their various redox states, which will enable studies of electron- and atom-transfer reactions and cation-POM interactions that are important for catalysis and energy storage applications. At a fundamental level, by analogy with reactive coordination complexes and metal alkoxides of reduced V, Mo and W, a rich chemistry is to be expected for highly-reduced POMs and for POMs containing reactive, electron-rich heterometal sites.

This presentation will set out the challenges associated with this chemistry, describe some of the approaches that have been adopted and highlight recent advances and opportunities for future investigations.