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Editorial

It is our great pleasure to introduce the Dalton Transactions themed collection on Spin Transitions, which aims to expand the horizons of the field by including new and different research areas.

Since the first observation of crossover between spin isomers in 1931 this intriguing phenomenon, namely spin crossover (SCO), has often been observed in coordination complexes containing the transition metal cations Fe(II), Fe(III), Co(II) and Mn(III), and also more rarely in other 3*d* metal ions. To date, a vast number of metal complexes with SCO properties has been prepared, and rational synthetic strategies, mechanistic understanding, and broadening of SCO functionality are still the main challenges in the field. Unfortunately, the recent passing of Professor Philipp Gütlich on the 9th September 2022, was a great loss to the SCO research community, which motivated us to take a further step to develop and nurture young researchers in the field of SCO. This field spans a wide range of basic and applied research and, furthermore, the switching characteristics of SCO have been exploited to express multi-functional properties in materials and molecular assemblies.

We have edited a themed collection focusing on molecular spin transition phenomena, including SCO, valence tautomerism (VT), electron transfer (ET) and other related topics. Through this themed collection, we aim to understand the current status of this field in depth, and develop its future prospects. Furthermore, our other aims are to bring about mutual understanding and boost collaborations within the community, and to attract young researchers to jump into the pool. With these motivations in mind, we have edited this themed collection on Spin Transitions in Dalton Transactions.

Finally, we would like to thank for joining us on the Spin Transition research area. Please take a moment to review the papers in this themed collection, discover new insights, and celebrate the remarkable achievements of Philipp Gütlich and his comrades in this research effort. We also would like to thank Dr. Samuel Oldknow and Dr. Mike Andrews for their constant support and encouragement.

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