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Research keywords: Organic-inorganic hybrid metal oxide clusters, coordination chemistry, molecular switches, photocatalysis, supramolecular chemistry, redox materials, energy storage

My group is interested in the manipulation of the electronic structure, redox properties, photochemistry, and self-assembly behavior of molecular metal oxides and their analogues.[1-3] This can be achieved in a number of ways, but our key approach is through the preparation of organic-inorganic hybrid molecular metal oxides, the physical properties of which depend on the interplay of their organic and inorganic building blocks. We are then particularly interested in studying how those molecular properties can be transferred across the size scales, from molecular to nanoscale and through to macroscale functional materials.[4]

I would be particularly interested in exploring potential collaborations in the areas of catalysis and photocatalysis, and functional nanomaterials.

References

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3. G. N. Newton, S. Yamashita, K. Hasumi, J. Matsuno, N. Yoshida, M. Nihei, T. Shiga, M. Nakano, H. Nojiri, W. Wernsdorfer and H. Oshio (2011). "Redox-Controlled Magnetic {Mn₁₃} Keggin Systems." *Angew. Chem. Int. Ed.* 50(25): 5715-5719
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