

Professor Peter A. Tasker

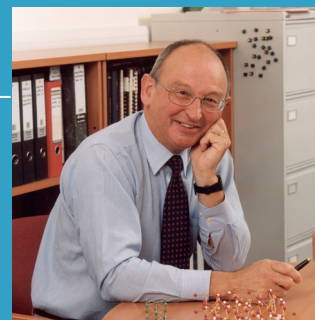
Professor of Industrial Chemistry

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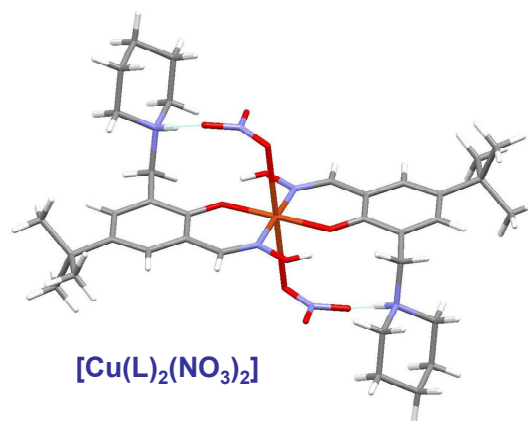
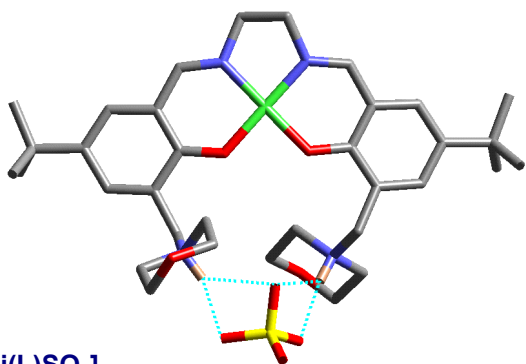
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Research Interests: Greener processes based on coordination chemistry: ligand design for surface engineering and metal recovery



Coordination chemistry has had an impact on many areas of science, ranging from photophysics to biology, and underpins the development many industrial products and processes. Much of the work in our group involves the design of ligands which bind very strongly and selectively to metal ions or metal surfaces. Functionalizing the ligands then allows us to tailor the properties of the complexes and use these in metal-recovery, surface engineering, metal deposition and in the development of new materials.



Simple oxime ligands achieve *concentration* and *separation* of copper in solvent extraction processes which now account for nearly a third of the world's copper production.⁵ We have recently developed systems which can extract both Cu²⁺ and its counter anions.



Phosphonates bind strongly to aluminium oxide surfaces and protect the Al flakes used in metallic paints on cars, preventing the formation of Al(OH)₃ which has a deleterious effect on the appearance of the reflective surface.¹

SELECTED RECENT PUBLICATIONS

1. R.J.Cooper, P.J.Camp, D.K.Henderson, P.A.Lovatt, D.A.Nation, S.Richards and P.A.Tasker, "The binding of phosphonic acids at aluminium oxide surfaces and correlation with passivation of aluminium flake" *Dalton Transactions*, 2007, in press, paper b617599f.
2. S.G.Galbraith, Q.Wang, Li Li, A.J.Blake, C.Wilson, S.R.Collinson, L.F.Lindoy, P.G.Plieger, M.Schröder and P.A.Tasker*, "Anion selectivity in zwitterionic amide-functionalised metal salt extractants," *Chem. Eur. J*, 2007, **13**, in press, paper 200601874.
3. C.W.Baxter, T.C.Higgs, P.J.Bailey, S.Parsons, F.McLachlan, M.McPartlin, and P.A.Tasker,* "Copper(I) alkynyl clusters, [Cu_{x+y}(hfac)_x(C≡CR)_y], with Cu₁₀ – Cu₁₂ cores", *Chem. Eur. J*, 2006, **12**, 6166-6174.
4. S.G.Galbraith, L.F.Lindoy, P.A.Tasker,* and P.G.Plieger, "Simple procedures for assessing and exploiting the selectivity of anion extraction and transport", *Dalton Transactions*, 2006, 1134-1136.
5. P.A.Tasker, P.G.Plieger and L.C.West, "Metal Complexes for Hydrometallurgy and Extraction", *Comprehensive Coordination Chemistry II*, **9.17**, 759-808, editors J.A.McCleverty and T.J.Meyer, Elsevier Ltd., Oxford, 2004