

## **Dalton Discussion 1: Metal Clusters**

University of Southampton, UK

3-5 January 1996

### **PROGRAMME**

Wednesday 3 January

#### **Session 1**

Keynote 1

##### **Gold- a flexible friend in chemistry**

D M P Mingos

*Imperial College, London, UK*

##### **Removing a second mercury atom from $[\text{Os}_{18}\text{Hg}_3\text{C}_2(\text{CO})_{42}]^{2-}$**

L H Gade\*, B F G Johnson, J Lewis, M McPartlin and I Scowen

*University of Cambridge, UK*

##### **Cluster core geometrical variation in heterometallic boride clusters containing $\text{RhRu}_4$ skeletons**

A D Hattersley, C E Housecroft\* and A L Reingold

*Institute für Anorganische Chemie, Basel, Switzerland*

##### **What can calculations employing empirical potentials teach us about bare transition metal clusters?**

D J Wales\*, L J Munro and J P K Doyle

*University of Cambridge, UK*

##### **Multinuclear NMR studies on transition metal carbonyl clusters**

T Eguchi, B T Heaton\*, R Harding, G Longoni, J Nahring, N Nakamura,

H Nakayama and A K Smith

*University of Liverpool, UK*

##### **Dynamic disorder in crystalline $\text{Fe}_2\text{Os}(\text{CO})_{12}$ : direct evidence for the rotation of the $\text{Fe}_2\text{Os}$ triangle in the solid state from variable temperature X-ray diffraction and $^{13}\text{C}$ MAS NMR studies**

L J Farrugia\*, A M Senior, D Braga, F Grepioni, A G Orpen and J G Crossley

*University of Glasgow, UK*

**Variable temperature nuclear magnetic resonance spectroscopic studies of the dynamic behaviour of the mixed-metal cluster compounds**

**[MM'Ru<sub>4</sub>H<sub>2</sub>(μ-dppf)(CO)<sub>12</sub>] [M = M' = Cu, Ag or Au; M = Cu, M' = Au; dppf = Fe(η<sup>5</sup>-C<sub>5</sub>H<sub>4</sub>PPh<sub>3</sub>)<sub>3</sub>]**

I D Salter\*, V Sik, S A Williams and T Adatia

*University of Exeter, UK*

Thursday 4 January

**Session 2**

Keynote 2

**Metal containing carbon clusters**

M F Jarrold

*Northwestern University, Evanston, USA*

**The chemistry and the geometric and electronic structures of small naked metal clusters prepared using a rotating cryostat and studied by electron paramagnetic resonance (EPR)**

B Mile\*, P D Sillman, A R Jacob and J A Howard

*University of Wales College of Cardiff, UK*

**Deposition and Growth of Noble Metal Clusters on Graphite**

G M Francis, I M Goldby, L Kuipers, B von Issendorf and R E Palmer\*

*University of Birmingham, UK*

**Preparation characterisation and properties of group VIII and IB metal nanoparticles**

R W Devenish, T Goulding, B T Heaton and R Whyman\*

*University of Liverpool*

**Alkoxide hydrolysis as a route to early transition-metal polyoxometalates: synthesis and crystal structures of heteronuclear hexametalate derivatives**

W Clegg, M F J Elsgood, R J Errington\* and J Havelock

*University of Newcastle upon Tyne, UK*

**Polyoxotitanates join the Keggin family: synthesis, structure and reactivity of  $[\text{Ti}_{18}\text{O}_{28}\text{H}](\text{O}^-\text{Bu}^t)_{17}\cdot\text{t-BuOH}$**

C F Campana, Y W Chen, V W Day, W G Klemperer\* and R A Sparks  
*University of Illinois, USA*

**Characterisation of a cationic triniobium aqua ion cluster and related studies**

S Siddiqui and D T Richens\*  
*University of St Andrews, UK*

**Session 3**

Keynote 3

**Diverse solid-state clusters with strong metal-metal bonding**

J D Corbett  
*Iowa State University, USA*

**Gas phase metal-sulphur cluster anions**

K J Fisher\* I Dance, G Willett and M-N Yi  
*University of New South Wales, Sydney, Australia*

**Dissolving alkali metals in zeolites: genesis of the perfect cluster crystal**

L J Woodall, P A Anderson, A R Armstrong and P P Edwards\*  
*University of Birmingham, UK*

**Synthesis and structural characterisation of new copper-tellurium clusters:  $^n\text{BuTeSiMe}_3$  as a source of RTe and Te ligands**

J F Corrigan, S Balter and D Fenske\*  
*Universität Karlsruhe, Germany*

**Synthesis and structural characterisation of  $\text{Ir}_4$  clusters**

M H A Benvenutti, J F Nixon\*, P B Hitchcock and M D Vargas  
*University of Sussex, Brighton, UK*

**Synthesis, redox properties and solid state structure of the iron nitrido-carbonyl clusters**

R Della Pergola\*, C Bandini, F Demartin, E Diana, L Garlaschellie, P L Stanghellini and P Zanello  
*Università Statale di Milano, Italy*

**Systematic synthesis of substituted hexanuclear phosphido- and phosphinidene-bridged osmium clusters**

B F G Johnson, J Lewis, E Nordlander\* and P R Raithby  
*University of Cambridge, UK*

Friday 5 January

**Session 4**

Keynote 4

**Ligand stabilised metal clusters and colloids in catalysis**

G Schmid  
*Universität Essen, Germany*

**Intrazeolite Pd large clusters prepared from organometallic chemical vapour deposition**

L Sordelli, G Martra, R Psaro\*, C Dossi and S Coluccia  
*Università Statale di Milano, Italy*

**Ferromagnetism from nanoscale cobalt clusters and particles dispersed in zeolite NaX**

I Hussai, I Gameson, P A Anderson\* and P P Edwards  
*University of Birmingham, UK*

**Stabilising structure investigation of tertiary amine-protected noble metal colloid dispersion in an organic solvent**

T Yonezawa, T Tominaga, and D Richard\*  
*Institut de Recherches sur la Catalyse, Villeurbanne, France*

**An informative probe for surfaces**

C Rodger, W E Smith\*, G Dent and M Edmondson  
*University of Strathclyde, UK*