R. F. Winter (Universität Stuttgart, Germany) described ruthenium complexes containing highly unsaturated systems. Intermediates generated by reaction of $[RuCl(L_2)_2]^+$ (L_2 = chelating diphosphine) with butadiyne may be trapped by reaction with amines, thiols, etc., to give a variety of products: secondary amines yield products $[Cl(L_2)_2Ru\text{-}C{\equiv}C\text{-}C(=NR_2)CH_3]^+$. Crystal structures suggest that the alternate resonance form $[Cl(L_2)_2Ru{=}C{=}C{=}C(SR)CH_3]^+$ is favoured for the thiol adducts.

The isolation of the unusual complex [Pt(Me)(OH)(COD)] containing *cis* methyl and hydroxyl ligands was reported by A. Klein (Universität Stuttgart, Germany). The OH ligand will react with weakly acidic species HX yielding water and co-ordinated X (for example X = C≡CPh, CH_2COCH_3). Efforts to determine the *trans* influence of the hydroxyl ligand in these complexes by NMR spectroscopy suggested that it is similar to that of chloride.

Professor F. G. A. Stone (Baylor University, Waco, U.S.A.) reported on studies of carborane and metallocarborane as ligands. New complexes have been prepared where the BH vertices of the carborane form exo-polyhedral bonds with other metal complexes. Depending on the system, the carborane can act in mono-, bi- or tridentate bonding modes to the metal, with additional bonding from bridging hydrogen atoms. With metallocarborane ligands it is possible for both the metal and boron to chelate to a metal fragment.

One of the highlights of the meeting was the presentation by Professor A. von Zelewsky (University of Fribourg, Switzerland) on chirality in platinum group metal complexes. With the aid of his computer he brought the chemistry "to life", adding a musical accompaniment to the dancing atoms and structures flashed upon the screen. Behind the stylish presentation was a large volume of work on how the chirality of the ligands influences the structure of molecules, for example, the formation of dimeric species where only *R,R* or *S,S* forms are obtained and not *S,R* combinations.

Professor J. L. Spencer (Victoria University of Wellington, New Zealand) reported a detailed NMR study of platinum bisphosphine alkane hydride complexes providing information on the intermediate structures in hydride migration/β-elimination reactions. Extension of these studies to chelates containing bulky PN and NN ligands allowed identification of CH activation in solvents such as toluene and dichloromethane.

Further talks by Professor L. A. Oro (Universidad de Zaragoza-CSIC, Spain) dealt with the interaction of dinuclear iridium complexes with hydrogen and alkynes while Professor P. Braunstein (Université Louis Pasteur, Strasbourg, France) dealt with the application of Pd/Fe complexes for the formation of distannanes.

Concluding Remarks

Aside from the chemistry discussed and acquaintances renewed, lasting memories of the week will be a new acronym, COBALT (computers on benches all linked together – Tom Ziegler), a new standard for stability (inert to refluxing in DMSO – Martin Schröder) and a new standard in audio-visual presentation (Alex von Zelewsky). There is much to look forward to at the next meeting in this series to be held at the University of Southampton, U.K., in 2002.

Liquid Petroleum Gas Detection

In order to monitor and control environmental pollution, there is an increasing need to develop new sensors able to detect toxic and hazardous gases. Liquid petroleum gas (LPG), a mixture of hydrocarbons, is an extensively used fuel, but there has been little work on LPG sensors. Now, scientists from Italy and India have fabricated a gas sensor, based on bulk semiconducting tin oxide and palladium, which is highly selective for LPG (A. R. Phani, S. Manorama and V. J. Rao, *Mater. Chem. Phys.*, 1999, **58**, (2), 101–108).

The tin oxide based sensor, containing 1.5 weight per cent of palladium and 35 weight per cent of aluminum silicate, was produced by sintering at 800°C for five hours. It showed great sensitivity (0.97) towards the selective detection of LPG in air at 350°C, even in the presence of carbon monoxide and methane. Tests carried out over a six months period at 200–400°C gave consistent results, ±3 per cent, indicating its reliability with time.