

Preface

From time to time, *Coordination Chemistry Reviews* chooses a common theme for a volume to bring together chapters which try to paint a picture of a particular area of chemistry. In this volume the common theme is "Newer Techniques" as applied to coordination chemistry.

In this collection, we begin with a discussion of the utility of microelectrodes, a field which has recently grown rapidly. Emphasis is laid here especially on variable-temperature experiments (Bond, Sweigart and co-workers). Such studies open the door to very high speed voltammetry and the study thereby of fast kinetic processes or the "freezing" of intermediates. This is followed by a treatise on the application of high pressure techniques when applied to kinetic problems (Kotowski and van Eldik). High pressure, as well as modifying photochemical and photophysical observations, can now be "added" to a range of kinetic methods including NMR, temperature jump and pressure jump.

Fourier transform ion cyclotron resonance mass spectroscopy (Sharpe and Richardson) provides a means of studying gas-phase reactions, inter alia, of organometallic compounds involving electron transfer, ligand exchange etc. and yields a method for obtaining their ionization potentials and electron affinities. Finally, the review of picosecond spectroscopy of transition metal complexes (Jamieson and Serpone) illustrates in considerable detail the very fast time scale photochemistry and photophysics of a wide range of complexes, providing a window into the primary events which occur subsequent to the absorption of a photon.

While this volume certainly does not cover all the newer techniques applied these days to problems in coordination chemistry, it does offer a glimpse of how modern technology can allow one to ask and answer some very fundamental questions.

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