

## Foreword

Fifty years ago, the first reports of the remarkably stable compound bis(cyclopentadienyl)iron, later to become known as ferrocene, touched off a flurry of research activity that led to the development of the modern field of organometallic chemistry. This discovery was seminal because it evoked new concepts of structure and bonding that served as a basis for the synthesis of a wide range of new compounds and materials.

The new concept of  $\pi$ -bonding of carbocyclic rings to metal atoms was a breakthrough and a major departure from the classical Wernerian model of ligand coordination that had prevailed until that time. Soon after the discovery, metal carbonyl complexes containing cyclopentadienyl, benzene, and other carbocyclic ligands began to emerge. The study of these compounds led to important developments in the fields of homogeneous catalysis, including carbonylation, hydrogenation, and polymerization. The use of metal complexes in catalytic asymmetric synthesis and in metallocene 'single site' catalysis for olefin polymerizations can trace their beginnings to concepts that emerged from the initial studies of ferrocene. Today, ferrocene is being incorporated into polymers to introduce new material properties, and drugs are being created by derivatization with ferrocene groups to create new, more potent agents for biomedical applications.

The first published report of the compound ferrocene appeared in December 1951. We organized this special issue of the Journal of Organometallic Chemistry to mark the 50th Anniversary of this first report. For historical interest, the issue begins with 'Recollections of the Discovery' from six of the people who were closest to the discovery itself. We are most pleased and

grateful to have their contributions. In 1973, Geoffrey Wilkinson and Ernst Otto Fischer were awarded the Nobel Prize for their pioneering research in this area; a copy of the citation for Professor Fischer's Nobel award is reprinted with his recollections. Two of the leaders in the ferrocene discovery process, Geoffrey Wilkinson and Robert Burns Woodward, are no longer with us. For the interested reader, an account of the discovery was written by Professor Wilkinson and published in 1975 [1], and an account of R.B. Woodward's contributions was recently written by Zydowsky and published in 2000 [2].

Today, over 400 research reports are published annually on ferrocene and its derivatives. We invited many of today's leading scholars to contribute reviews and reports of original research; over 100 have done so. We think this issue demonstrates that there continues to be great interest and vitality in research on ferrocene and its derivatives, and it is likely that studies leading to new applications will continue well into the future.

### References

- [1] G. Wilkinson, *J. Organomet. Chem.* 100 (1975) 273.
- [2] T.M. Zydowsky, *Chem. Intelligencer* (2000) 29.

R.D. Adams  
*Department of Chemistry & Biochemistry, GSRC,  
University of South Carolina,  
631 Sumter St.,  
Columbia, SC 29208, USA  
E-mail: adams@mail.chem.sc.edu*