



Foreword

Carbon-rich organometallics

During the last 10 years, carbon-rich and carbon-rich organometallic compounds have generated and continue to generate considerable interest, in the organic, organometallic and materials communities. Due to the interest in this topic, there has been a carbon-rich special issue of JOMC in 1999 (Vol. 578). This issue was warmly received, and now, 4 years later, we present a second special issue on carbon-rich organometallics. Again the questions that are important to this field are novel and exciting topologies. Molecules are presented that bring the field of carbon-rich organometallics into the realm of nanoscience and show that large molecular and supramolecular carbon-rich species feature fascinating materials, electronic and/or catalytic properties.

The issue is thematically divided into three areas:

- 1) In the first area, the progress in carbon-rich aromatic chemistry with respect to organometallic materials and synthetic targets is treated. The issue starts out with a topical review about the chemistry of highly alkynylated cyclobutadiene complexes and ferrocenes that have been prepared by the Bunz group. Tykwinski explores the supramolecular aspects of carbon-rich organometallic materials and Haley describes in an exciting contribution the synthesis and characterization of novel organometallic cyclines, while Sharp portrays the organometallic chemistry “on the edge” of large hydrocarbons. Related to the topic of large aromatics, Komatsu reports the mechano-chemical synthesis of very unusual C_{60} -dimers with a germanium bridge between the two buckyballs.
- 2) The second large area is dedicated to linear oligoene/oligoyne, carbene and vinylidene species, and

Jia shows that organometallic versions of oligo- and polyenes are fascinating targets with unusual optical and electronic properties. In further contributions, Ren, Müller, Lapinte, Bruce and LoSterzo explore different dimensions and topologies of a series of C_n -ligands either directly bound to a metal or attached to π -bound ligand such as a benzene tricarbonyl fragment. A particularly nice example is Müller’s pyrolysis of organometallic butadiynes. These butadiynes form unusual paramagnetic solid-state materials upon heating that have promising magnetic attributes. The contributions of Fischer and Raithby deal with the synthesis and properties of novel metal vinylidene and allenylidene complexes and their behavior.

- 3) The third area with only two contributions is methodology. Melikyan et al. describe tetrahydrofuran-mediated radical processes that aid in the synthesis of hexestrol and Petrukhina et al. elaborate on solvent-free synthesis for the entrapment of thermally unstable species both utilizing highly carbon-rich organometallic intermediates.

Overall, this issue gives a rounded perspective over the active field of carbon-rich materials and its applications in methodology and materials science. The esthetically pleasing structures in combination with the unusual chemical properties of this somewhat exotic field will expand and increase further attention in the future.

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