Editorial

The field of organometallic chemistry has rapidly increased in importance over the past decades since the landmark discoveries in the 1950's of *e.g.* ferrocene, *Wilkinson*'s catalyst, *Ziegler*'s catalyst, and the *Wacker* process. Meanwhile, organometallic compounds, particularly of the transition metals, have found many applications in homogeneous catalysis and in the development of new synthetic methods and materials. This issue of *Chemical Monthly* is dedicated to recent work on organometallic complexes of the late transition metals, including mechanistic and synthetic studies, ligand design, and new applications in homogenous catalysis.

At first two review papers are presented. The article of *Nagashima* describes the activation of dihydrogen by a tricarbonylruthenium cluster containing acenaphthalene and azulene ligands. The role of these hemilabile μ_3-ligands is discussed, and new insight into cluster analysis is presented. Clearly, cluster compounds are an important topic of modern organometallic chemistry. The review article by *Kirchner*, *Schmid*, and coworkers deals with the recent chemistry of the *tris*-acetonitrile complex $[\mathrm{Ru}Cp(\mathrm{CH_3CN})_3]^+$, focusing on its synthetic potential as well as on mechanistic aspects and future applications in homogeneous catalysis.

The next part of this issue includes research papers on synthetic, mechanistic, and theoretical aspects of late transition organometallics. New developments in the synthesis and structure of copper(I) complexes containing the 1,1′-*bis*-(diphenylphosphino)-ferrocene ligand are reported by the group of *Calhorda*. In the contribution by the *Jalon* group, binuclear palladium complexes with a half-A-frame structure and their fluxional behaviour in solution are described. The group of *Trzeciak* and *Ziołkowski* is treating mechanistic aspects of reactions related to benzyl bromide carbonylation mediated by palladium complexes. New mechanistic insight into the nickel-catalyzed electrosynthesis of ketones by the heterocoupling of acyl and benzyl halides can be gained from the contribution of the group of *Amatore* and *Jutand*. The group of *Avilés* reports on a self-assembly process of Ag^+ with *trans*-azobenzene to afford a novel coordination polymer with a 2D supramolecular structure. This is particularly interesting since organometallic reactions in the solid state are rare. Therefore, the novel solid-state hydrido-alkynyl to vinylidene tautomerization described by the group of *Puerta* and *Valerga* is a worthwhile contribution. Finally, the *Kölle* group describes the potential of organometallic rhodium complexes for stoichiometric applications in organic chemistry, *i.e.* the oxidation of alcohols by $[\mathrm{Rh}Cp^*(ppy)(\mathrm{OH})]^+$.

The third part focuses on recent developments in homogeneous catalysis. The paper by *Beller* and coworkers deals with the rhodium-catalyzed amination of aromatic olefins. *Studer* and colleagues describe new enantioselective homogeneous hydrogenation reactions of monosubstituted pyridines and furans. The contribution of the *Togni* group is dealing with an iridium(I)-catalyzed asymmetric intermolecular hydroarylation of norbornene with benzamide to give 2-exo-norbornylbenzamide. In this process, an enantiomeric excess of up to 94% is achieved. *Gladiali* and coworkers investigate the catalytic activity of Rh(I) complexes with (*S*)-*BINAPO*, a new axially chiral inducer capable of hemilabile P,O-heterobimetallic coordination. By the group of *Skoda-Földes*, new chiral steroidal phosphines are reported as ligands for platinum complexes. The last contribution dealing with a new stereoselective hydrogenation of folic acid and 2-methylquinoxaline with optically active Rh(I) phosphine complexes is presented by the group of *Brunner*.

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Karl Kirchner
Walter Weissensteiner
Issue Editors