

# Preface

Organometallic chemistry is one of the key tools in modern organic synthesis. Besides stoichiometric reactions of organometallic compounds, especially transition metal-catalyzed reactions play a dominant role, and a wide range of transition metal-catalyzed cross-coupling reactions has been developed during the last decades. Of these C–C coupling reactions, the allylic alkylations became a major player in this field. In 1965, J. Tsuji discovered that C–C bond formation can be achieved by the reaction of  $\pi$ -allylpalladium complexes with C-nucleophiles, typically stabilized carbanions such as malonates. Later on, catalytic and enantioselective versions were developed mainly by B. M. Trost and his group. While in the early years the  $\pi$ -allyl chemistry was clearly dominated by the palladium complexes, in the meanwhile a wide range of other transition metals made their way into the limelight. During the last two decades, complexes of Mo, W, Ir, Rh, Ru and Fe became competitors to the popular Pd catalyst. Each of these transition metals has its own characteristics and reaction behavior.

The aim of this volume of *Topics in Organometallic Chemistry* is to focus on the latest developments of transition metal-catalyzed allylation reactions. Besides mechanistical aspects and the specialities of the different transition metals, applications of this interesting protocol in the asymmetric synthesis of natural products will also be covered.

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