Synthesis of New Substituted Zinc Carbenoids and Their Application in Cyclopropanation Reactions

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Abstract: The Simmons-Smith reaction is a well-known process to deliver a methylene unit into an alkene. The preparation of 1,2,3-substituted cyclopropane in a diastereocontrol fashion is a much more challenging goal, since it involves the preparation of alpha-substituted zinc carbenoids that are potentially too unstable and/or not sufficiently reactive to undergo cyclopropanation. In this lecture, the preparation of novel alpha-substituted zinc carbenoids will be presented, and their applications to the synthesis of enantio-enriched 1,2,3-substituted cyclopropanes will be discussed. Further applications of cyclopropane building blocks will be highlighted.