Preface

Green method, atom economy, and concise synthesis are terms frequently mentioned in chemistry-related publications and presentations nowadays. Inspired by the requirements of green and sustainable chemistry, considerable efforts have been devoted to developing general and practical methods to construct complex molecules by taking advantages of chemical reagents with diverse and tunable reactivity. Haloalkynes, such as bromoalkynes, chloroalkynes, and iodoalkynes, are a significant class of molecules that have these futures and been widely utilized in organic synthesis.

This book summarizes the general methods to prepare haloalkyne reagents and also presents the selected examples to highlight the progress on the development and applications of convenient and concise synthetic approaches involving haloalkynes. According to the reactive sites of haloalkynes involved in the transformations, we classify these reactions into three types: (i) the transformations of carbon–halo bond motif; (ii) the diverse functionalization of carbon–carbon triple bond unit; and (iii) the reactions involving both carbon–halo bond motif and carbon–carbon triple bond unit. The emphasis is put on the reaction mechanism aspects and the synthetic utilities of the obtained products.

The primary purpose of this book is to illustrate the diverse reactivities and applications of haloalkyne reagents, to describe the experimental techniques of these valuable transformations in detail, as well as to enlighten the researchers to answer the unsolved problems in haloalkyne chemistry. This book should be useful to researchers in organic and organometallic chemistry as well as catalysis from both academia and industry. Significantly, doctorate students and postdoctoral researchers should be motivated by these innovations in chemistry.

I am especially grateful to the cooperative contributions made by all the authors. Without their efforts and expertise, this book would not have been possible. I would also like to thank the organizational support from Springer to overcome the troubles encountered in the production of this book.

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