DESCRIPTION

For the first time, the whole field of organoboronic acids is presented in one comprehensive handbook.

Professor Dennis Hall, a rising star within the community, covers all aspects of this important substance class, including applications in chemistry, biology and medicine.

Starting with an introduction to the structure, properties, and preparation of boronic acid derivatives, together with an overview of their reactions and applications, the book goes on to look at metal-catalyzed borylation of alkanes and arenas, coupling reactions and rhodium-catalyzed additions of boronic acids to alkenes and carbonyl compounds. There follows chapters on copper-promoted C-O and C-N cross-coupling of boronic acids, recent applications in organic synthesis, as well as alpha-haloalkylboronic esters in asymmetric synthesis. Later sections deal with cycloadditions, organoboronic acids, oxazaborolidines as asymmetric inducers, and boronic acid based receptors and sensors. The whole is rounded off with experimental procedures, making this invaluable reading for organic, catalytic and medicinal chemists, as well as those working in organometallics.

ABOUT THE AUTHOR

Dennis Hall is a Professor of Chemistry at the University of Alberta (Edmonton, Canada). He was born in 1968 in northern Quebec, Canada, and was educated at Université de Sherbrooke, obtaining his Ph.D. in 1995 under the direction of Prof. Pierre Deslongchamps. Hall was an NSERC Postdoctoral Fellow in the laboratory of Prof. Peter G. Schultz in the Department of
Chemistry at the University of California, Berkeley, and initiated his independent career in 1997. The unifying theme of his research program is the development of new synthetic and biological applications of organoboronic acid derivatives. Ongoing projects in his laboratory cover a wide range of topics, including stereocontrolled allylation methodology, multicomponent reactions, solid-phase organic synthesis, combinatorial chemistry and oligosaccharide recognition. His recent awards include a Petro-Canada Young Innovator Award (2003), the AstraZeneca Award in Chemistry (2003), and the University of Alberta's Martha Cook Piper Research Prize (2004). He is a Fellow of the Canadian Institute of Chemistry.

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