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Nota di contenuto	Introduction -- Regioselective Insertion of -Carborynes into -CH Bond of Tertiary Amines -- Synthesis of Carborane-Functionalized Heterocycles: Dearomative [2 + 2] Cycloaddition and sp2 C–H Insertion Reaction -- Reaction of -Carboryne with Nitrones: A Formal [5 + 2] Cycloaddition -- 1,3-Dehydro--Carborane: Generation and Reaction with Arenes -- Ene Reaction of 1,3-Dehydro--Carborane -- Cage Boron Arylation of -Carborane via Metal-Free, Visible-Light-Mediated Radical Coupling -- Conclusion -- Experimental Section.
Sommario/riassunto	This thesis focuses on the development of new methods of functionalizing carboranes using o-carboryne intermediates. Functional carboranes are now finding a broad range of applications, including organic synthesis, drug design, polymers, catalysis, metalorganic frameworks, electronic devices and more. However, the limited number of efficient synthetic methods for obtaining functional carborane materials has restricted their applications. The methodologies established in this thesis represent simple, yet powerful strategies to assemble previously inaccessible, useful complex molecules, which will also have a significant impact on future synthetic, cluster and materials

chemistry. Moreover, it discusses the first method for the in situ generation of electrophilic boron radical using photocatalysis. .