Record Nr. UNINA9911035051403321 Autore Martín-Fernández Carlos Titolo Computational Methods for the Analysis of Non-Covalent Interactions / / edited by Carlos Martín-Fernández, Stuart A. Macgregor Cham:,: Springer Nature Switzerland:,: Imprint: Springer,, 2025 Pubbl/distr/stampa **ISBN** 9783032015433 Edizione [1st ed. 2025.] Descrizione fisica 1 online resource (446 pages) Collana Structure and Bonding, , 1616-8550 ; ; 190 Altri autori (Persone) MacgregorStuart A Disciplina 542.85 Soggetti Chemistry - Data processing Quantum chemistry Coordination compounds Organometallic chemistry Chemistry, Inorganic Bioinorganic chemistry Computational Chemistry Quantum Chemistry Coordination Chemistry Organometallic Chemistry Main-Group Chemistry Bioinorganic Chemistry Lingua di pubblicazione Inglese **Formato** Materiale a stampa Monografia Livello bibliografico Nota di contenuto Interpreting Non Covalent Bonds with the Block Localized Wave Function (BLW) Method -- Local Energy Decomposition of Coupled Cluster Energies Principles and Applications -- Electron Density based Energy Decomposition Analysis from QM to QM/MM calculations --GKS EDA method for intermolecular interactions in complex systems --SAPT and many body dispersion: Intermolecular interactions at cubic scaling cost -- Survey of contemporary applications of Quantum Chemical Topology -- The Interpenetration Index and its applications in chemistry -- Exhibiting noncovalent interactions in dynamic environments using aIGM method.

This volume showcases state-of-the-art computational methodologies

Sommario/riassunto

for the description and analysis of non-covalent interactions. Each chapter focusses on a specific approach, outlining a theoretical framework for the method in hand that is then illustrated by cutting-edge applications. A range of energy decomposition analyses and real-space topological and geometrical schemes are covered, providing a menu of approaches from which to draw insight into non-covalent interactions. The book serves as a comprehensive resource for computational chemists, as well as experimental chemists seeking to understand how computational techniques can be applied in their research.