1. Record Nr. UNINA9910983367303321

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| Titolo | Novel Group Theoretical Methods for Electron Structure Theory / / by Victor G. Yarzhemsky |
| Pubbl/distr/stampa | Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025 |
| ISBN | 9783031728020<br>3031728025 |
| Edizione | [1st ed. 2025.] |
| Descrizione fisica | 1 online resource (498 pages) |
| Disciplina | 530.41 |
| Soggetti | Condensed matter<br>Topological insulators<br>Superconductors - Chemistry<br>Group theory<br>Quantum chemistry<br>Condensed Matter Physics<br>Topological Material<br>Strongly Correlated Systems<br>Superconductors<br>Group Theory and Generalizations<br>Quantum Chemistry |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Point Groups and Wavefunctions in Molecules -- Magnetic Groups and Their Applications -- Induced Representations Method in the Theory of Electron Structure -- Cooper Pairs as Two-electron States in Crystals. |
| Sommario/riassunto | This book presents the induced representation method, a powerful technique in quantum mechanics with applications in condensed matter physics. After introducing the key concepts in group theory and representation theory necessary to understate the technique, the author goes on to explore applications in electron structure theory, namely: basis sets in clusters, normal vibrations, selection rules, two-electron wavefunctions, and space-group representations. This technique allows the simplification of standard techniques for the |

analysis of molecular orbitals and normal vibrations of molecules. A space group approach to the wavefunction of a Cooper pair based on the Anderson ansatz and Mackey-Bradley theorem is developed, and several applications are considered, namely group-theoretical nodes, non-symmorphic groups, and unification of the group theoretical and topological approaches to the structure of Cooper pairs in unconventional superconductors.