Richard Dronskowski

Chemical Bonding

From Plane Waves via Atomic Orbitals

DE GRUYTER

Contents

| Preface — VII | | |
|------------------------|--|--|
| Lis | t of ab | breviations XIII |
| 1 | How to read (and not to read) this book —— 1 | |
| 2 | Calculating molecules and solids —— 3 | |
| 3 | Analyzing molecules and solids —— 14 | |
| 4 | 4.1 4.2 4.3 4.4 | n Samurai material classes and their chemical bondings — 37 Simple systems in harmony with the octet rule — 39 Mixed anions, complex anions, and complex cations — 51 Covalency versus ionicity in battery materials — 65 Molecular crystals, hydrogen, and other secondary bonding — 74 |
| | 4.5 4.6 4.7 | Zintl phases, metals, itinerant magnets, and steels —— 86 Weird stuff from high pressure —— 99 Multicenter bonding in solids —— 113 |
| 5 | What can be learned! —— 129 | |
| 6 | Appendix: treats of general and quantum chemistry —— 131 | |
| Ref | fe renc | es —— 149 |
| Acknowledgments —— 165 | | |
| Index —— 167 | | |