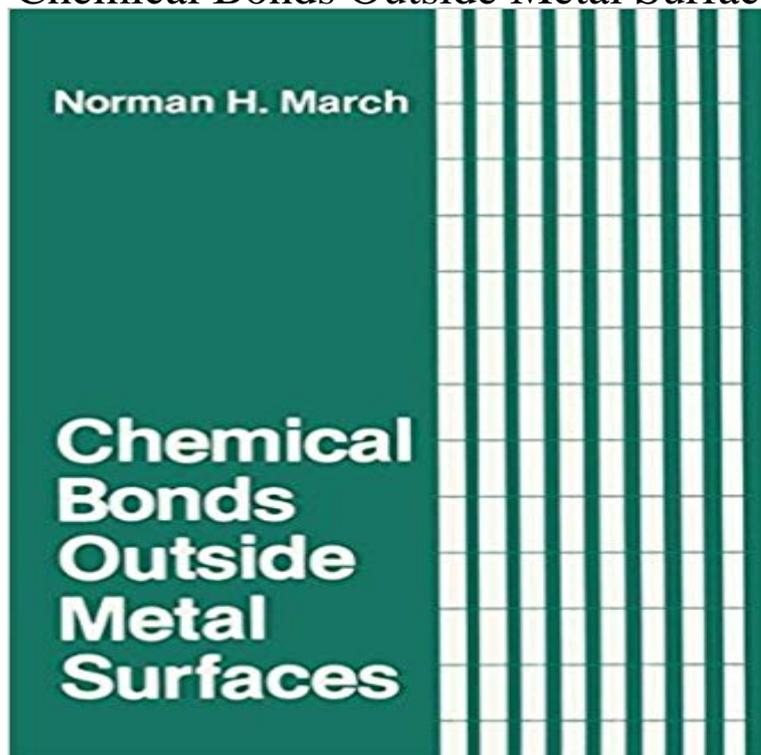


Chemical Bonds Outside Metal Surfaces (Physics of Solids and Liquids)



The problem of molecules interacting with metal surfaces has for a very long time been recognized to be of considerable technological as well as fundamental importance. Thus in the former category, a substantial number of important synthetic reactions for industrial purposes make use of metal surfaces as catalysts. Or again, problems of corrosion of metals are of great practical importance, such as in nuclear-reactor technology [see, for instance, my earlier articles, in: *Physics Bulletin*, Volume 25, p. 582, Institute of Physics, UK (1974); and in: *Physics and Contemporary Needs* (Riazuddin, ed.), Vol. 1, p. 53, Plenum Press, New York (1977)]. It is therefore of significance to strive to gain a more fundamental understanding of the atomic, and ultimately the electronic, processes that occur when a molecule is brought into the proximity of a metal surface. The present volume focuses mainly on the theory and concepts involved; however, it is intended for readers in chemistry, physics, and materials science who are not specialists in theory but nevertheless wish to learn more about this truly interdisciplinary area of theoretical science. The aim of the book is to present the way in which valence theory can be synthesized with the understanding of metals that has been gained over the last half century or so. While advanced theory has at times been necessary, is largely presented in an extensive set of Appendixes.

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