

Chang Q Sun

Relaxation of the Chemical BondSkin Chemisorption Size Matter ZTP Mechanics H₂O Myths

The aim of this book is to explore the detectable properties of a material to the parameters of bond and non-bond involved and to clarify the interdependence of various properties. This book is composed of four parts; Part I deals with the formation and relaxation dynamics of bond and non-bond during chemisorptions with uncovering of the correlation among the chemical bond, energy band, and surface potential barrier (ϕ_B) during reactions; Part II is focused on the relaxation of bonds between atoms with fewer neighbors than the ideal in bulk with unraveling of the bond order-length-strength (BOLS) correlation mechanism, which clarifies the nature difference between nanostructures and bulk of the same substance; Part III deals with the relaxation dynamics of bond under heating and compressing with revealing of rules on the temperature-resolved elastic and plastic properties of low-dimensional materials; Part IV is focused on the asymmetric relaxation dynamics of the hydrogen bond (O:H-O) and the anomalous behavior of water and ice under cooling, compressing, and clustering. The target audience for this book includes scientists, engineers and practitioners in the area of surface science and nanoscience.

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