

Table of Contents

Preface

Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Introduction Y.L. Khait	1
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Summary of Basic Experimental Facts in Atomic Diffusion in Solids Unexplained by the Traditional Theory Y.L. Khait	9
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Statement of the Problem in the Nanoscopic Electron-Affected Many-Body Dynamics of Atomic Diffusion in Solids Y.L. Khait	15
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Stochastic Many-Body Atomic Dynamics of Thermal Fluctuations and Nanoscopic Diffusion Events in Solids Y.L. Khait	26
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Basic Ideas of Nanoscopic Many-Body Picosecond Atomic Dynamics of Single Slegs and Sleg-Generated Diffusion Events in Solids Y.L. Khait	38
Kinetics and Applications of Atomic Diffusion in Solids: Nanoscopic Many-Body Dynamics of Picosecond Diffusion Events and Kinetic Foundations of the Arrhenius-Like Equation for Atomic Diffusivity in Solids Y.L. Khait	47
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Electron-Affected Atomic Diffusion Coefficients Y.L. Khait	73
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Kinetic Compensation Effect and Diffusion-Melting Correlations Y.L. Khait	85
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: The Compensation Effect and Diffusion-Melting Correlations in Atomic Diffusion in Crystalline Si and Ge Y.L. Khait	89
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Criteria for Material Purity and the Impurity Concentration Affecting Atomic Diffusion and Material Stability in Solids Y.L. Khait	97
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Diffusion Parameters, Diffusion-Melting Correlations and the Compensation Effect in $\text{Si}_{1-y}\text{Ge}_y$ Alloys Y.L. Khait	103
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Electron-Affected Kinetics of Atomic Diffusion in HgCdTe Compounds. The Compensation Effect and Diffusion-Melting Correlations Y.L. Khait	106
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Kinetics of Material Evolution and Gradual Degradation in Semiconductor Lasers and Light Emitting Diodes Enhanced by Electron-Hole Recombination Y.L. Khait	123
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Electron-Related Variations in Impurity Diffusion Parameters in Si and Ge. The Compensation Effect and Diffusion-Melting Correlations Y.L. Khait	134

Kinetics and Applications of Atomic Diffusion in Solids: Enormously Large Variations of Diffusion Parameters in S, P, Se, Bi and BaO. Kinetic Electron - Related Interpretation and Diffusion-Melting Correlations	
Y.L. Khait	149
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Electron-Related Kinetics of Atomic Diffusion and Diffusion-Melting Correlations in Elemental Metals	
Y.L. Khait	151
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Effects of Pressure (Stress) on Atomic Diffusion, Diffusion-Melting Correlations and the Compensation Effect in Solids	
Y.L. Khait	163
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: Conclusion Remarks and Outlook	
Y.L. Khait	180
Kinetics and Applications of Atomic Diffusion in Solids - Nanoscopic Electron-Affected Stochastic Dynamics: References	
Y.L. Khait	201