

Contents

Contributors	v
Preface	xi
INTRODUCTORY COMMENT	1

Part 1

UV AND X-RAY PHOTOELECTRON SPECTROSCOPY OF METALS AND ALLOYS

Ultraviolet Photoemission Studies of Alloys and Disordered Systems	<i>W.E. Spicer</i>	7
Observation and Calculation of Inelastic Scattering in UV Photoemission Spectra	<i>P.O. Nilsson and I. Lindau</i>	55
X-Ray Photoelectron Spectroscopy in the Study of the Band Structure of Metals	<i>S.B.M. Hagström</i>	73
X-Ray Photoelectron Spectra and Electron Studies of Aluminium-Gold Alloys	<i>D.J. Fabian, J. Fuggle, L.M. Watson, D. Latham and A. Barrie</i>	91
X-Ray Photoelectron Spectra and Band Structure of Alkali Halide Crystals	<i>V.V. Nemoshkalenko, A.I. Senkevich and V.G. Aleshin</i>	107

Part 2

SOFT X-RAY EMISSION FROM ALLOYS

A Survey of Characteristics of Alloy X-Ray Emission Spectra	<i>L.M. Watson</i>	125
X-Ray Emission Band Spectra and Electronic Structure of Alloys of Light Elements	<i>H. Neddermeyer</i>	153
Electronic Properties of Aluminium and Silicon Inter-metallic Compounds from X-Ray Spectroscopy	<i>G. Wiech and E. Zöpf</i>	173

Soft X-Ray Study of the d-Bands in AuAl_2 <i>A.J. McAlister, J.R. Cuthill, R.C. Dobbyn and M.L. Williams</i>	191
X-Ray K-Emission Spectra of Aluminium-Gold Alloys <i>E. Källne</i>	205
Soft X-Ray Emission Spectra and Electronic Structure of Alloys of Aluminium with First Transition-Series Metals <i>Q.S. Kapoor, L.M. Watson and D.J. Fabian</i>	215
Transitions Involving Solute d-Electrons in Magnesium- Based Alloys <i>P.R. Norris, R.S. Crisp and R.K. Dimond</i>	229
X-Ray Spectra and Energy Band Structure of Binary Alloys of Vanadium with the Elements at the End of the Transition Series <i>S.A. Nemmonov, E.Z. Kurmaev, B.Kh. Ishmukhametov and V.P. Belash</i>	237
Soft X-Ray Spectra of Vanadium, Niobium and the Alloys V_3Sn and Nb_3Sn <i>C.F. Hague and C. Bonnelle</i>	251
New X-Ray Emission Spectra of Transition Metals in the Region of 100-1000 Å <i>V.A. Fomichev, T.M. Zimkina, and A.V. Rudnev</i>	259

Part 3

THEORY AND MANY-BODY EFFECTS OF SOFT X-RAY AND PHOTOELECTRON EMISSION FROM METALS AND FROM DISORDERED ALLOYS

Theory of Soft X-Ray Emission and Many-Particle Effects <i>N.H. March</i>	297
Theory of X-Ray Emission Bands of Transition Metals <i>M.A. Blokhin, I.Y. Nikiiforov, H. Sommer and I.I. Gegoosin</i>	321
Many-Body Effects in X-Ray and Photoelectron Emission from Metals and Alloys <i>L. Hedin</i>	331
Intensity of the Fermi-Edge Singularity <i>P. Longe</i>	341
p-Resonant States and Soft X-Ray Emission <i>F.K. Allotey</i>	361
The Effect of Electron-Interaction on Soft X-Ray and Photoelectron Spectra of Metals <i>V.P. Sachenco, R.V. Vedrinski and J. Richter</i>	375
A One-Electron Theory of Soft X-Ray Emission from Random Alloys <i>B.L. Gyorffy and M.J. Stott</i>	385

Pseudopotential Theory and Impurity States in Noble and Transition Metals	<i>C. Demangeat, F. Gautier and R. Riedinger</i>	405
On the Electronic Properties of Disordered Transition and Noble-Metal Alloys	<i>F. Brouers and A.V. Vedyayev</i>	407
Theory of X-Ray Spectra of Disordered Alloys	<i>O.B. Sokolov and Y.A. Babanov</i>	431
The K-Emission Spectrum from Two Phases of Lithium Metal	<i>R.S. Crisp</i>	453

Part 4

X-RAY ABSORPTION AND ISOCHROMAT SPECTROSCOPY OF ALLOYS AND DENSITY OF UNOCCUPIED ELECTRON STATES

X-Ray Probes of Vacant Energy Bands	<i>D.J. Nagel</i>	457
Electronic Structure of Copper-Nickel-Zinc Ternary Alloys	<i>R.S. Brown, L.V. Azároff and R.J. Donahue</i>	491
Soft X-Ray Absorption Spectroscopy of Metals and Alloys	<i>C. Kunz</i>	503
Isochromat Spectroscopy of Alloys	<i>K. Ulmer</i>	521
On the Temperature Dependence of Bremsstrahlung Isochromats	<i>H. Merz</i>	543
A New Transition Process Concerning the Generation of Bremsstrahlung in Solids	<i>J. Kieser</i>	557
Note: On Ion Impact-Excitation of X-Ray Spectra	<i>D.J. Nagel</i>	567

Part 5

LIQUID AND AMORPHOUS METALS AND ALLOYS, COMPOUNDS AND CHEMICAL BONDING

On the Density of States of Liquid Metals and Alloys	<i>G. Busch and H.J. Gluntherodt</i>	579
Electronic Structure of Liquid Semiconductors	<i>J.E. Enderby</i>	609
X-Ray Emission and Absorption Spectra of Crystalline and Amorphous Silicon	<i>G. Wiech and E. Zöpf</i>	629
On the Temperature Dependence of Soft X-Ray Spectra and Knight Shift in Liquid Metals and Their Alloys	<i>B.L. Gyorffy</i>	641

The Application of Molecular Orbital Theory to the Interpretation of X-Ray Emission Spectra of Iron Compounds	<i>R.A. Slater and D.S. Urch</i>	655
Use of Soft X-Ray Band Spectra for Determining Valence/Conduction Band Structure of Transition-Metal Compounds	<i>D.W. Fischer</i>	669
Effect of Surface Oxide on Soft X-Ray Emission Bands of Metals and Alloys	<i>J.E. Holliday</i>	713
On the Intensities of Long Wavelength Satellites of K β Series	<i>M. Sawada</i>	725
AUTHOR INDEX		727
SUBJECT INDEX		745