

CONTENTS

APPLICATIONS OF X-RAY ANALYSIS TO ENVIRONMENTAL AND BIOMEDICAL STUDIES	1
APPLICATION OF NEUTRON ACTIVATION ANALYSIS TO ENVIRONMENTAL AND BIOMEDICAL STUDIES	10
THE APPLICATION OF SCANNING ELECTRON MICROSCOPY AND ENERGY DISPERSIVE X-RAY ANALYSIS TO THE EXAMINATION OF FORENSIC PAINT SAMPLES	19
NEW RESULTS OBTAINED WITH A REGULAR XRF SPECTROMETER AND A PORTABLE FIELD SPECTROMETER, EQUIPPED WITH A COLD CATHODE ELECTRON TUBE	27
PROPORTIONAL COUNTER PARAMETERS	37
THE USE OF SOFT X-RAY SPECTROSCOPY AS A TOOL FOR STUDYING THE SURFACE REGION OF METALS AND ALLOYS	53
DIFFERENTIAL PHOTOIONIZATION CROSS SECTION OF NEON SUBSHELLS FOR THE X-RAY ANALYSIS BY PHOTOELECTRON SPECTROMETRY	63
PHOTOELECTRON SPECTROMETRY: A NEW APPROACH TO X-RAY ANALYSIS	74
HIGH-SENSITIVITY ESCA INSTRUMENT	90
SENSITIVITY AND DETECTABILITY LIMITS FOR ELEMENTAL ANALYSIS BY PROTON-INDUCED X-RAY FLUORESCENCE WITH A 3 MV VAN DE GRAFF	102
IN VIVO ANALYSIS OF LIPID-PROTEIN RATIOS IN HUMAN MUSCLE BY DIFFERENTIAL X-RAY ABSORPTION USING 109_{Cd} PHOTONS	111
AN ENERGY DISPERSIVE SYSTEM FOR THE ANALYSIS OF TRACE ELEMENTS IN HUMAN BLOOD SERUM	124
X-RAY ENERGY ANALYSIS OF PARTICULATE MATTER ON FILTER PAPER	134
THE TETRAGONAL STRUCTURE OF COLLAGEN	146
A SIMPLE GRAZING INCIDENCE X-RAY LENS	150
X-RAY SPECTROMETRIC DETERMINATION OF ATMOSPHERIC AEROSOLS	165
COMPOSITION AND LATTICE CONSTANT EVALUATION OF THE GARNET SYSTEM $(\text{Dy,Gd})_3\text{Ga}_5\text{O}_{12}$	177
NEW IMPROVEMENTS IN ROUTINE QUANTITATIVE PHASE ANALYSIS BY X-RAY DIFFRACTOMETRY	186
ABSORPTION CORRECTION CURVES OBTAINED FROM MEASUREMENTS OF THE PRODUCTION OF X-RAYS AS A FUNCTION OF DEPTH	198
THE PROCESSING OF ENERGY DISPERSION X-RAY DATA IN A TIME-SHARING COMPUTER	206

REACTIONS IN THIN METAL FILMS BOMBARDED BY THE HIGH INTENSITY ELECTRON MICROSCOPE BEAM	217
FLASH X-RAY DIFFRACTION SYSTEMS	229
SUBMICROSECOND X-RAY DIFFRACTION STUDIES	242
SOME NEW METHODS OF PRECISION X-RAY SPECTROMETRY	251
MINIATURE X-RAY EQUIPMENT FOR DIFFRACTION AND FLUORESCENCE ANALYSIS	260
AUTOMATION OF A MANUAL SPECTROMETER BY USE OF A HARDWIRED ANGLE PROGRAMMER AND MICROCOMPUTER	273
AN INTEGRATED SYSTEM FOR ELEMENTAL X-RAY ANALYSIS OF MATERIALS	284
A RAPID FLUORESCENCE AND ENERGY POWDER PATTERN ANALYSIS SYSTEM	298
USE OF AN AUTOMATED POWDER DIFFRACTOMETER FOR THE ANALYSIS OF ROCK SAMPLES	310
EVALUATION OF THE ENERGY DISPERSIVE DETECTOR AS A DETECTOR-FILTER SYSTEM FOR THE X-RAY DIFFRACTOMETER	322
THREE DIMENSIONAL X-RAY SYNTHESIS	336
COMPUTER CONTROLLED X-RAY DIFFRACTION MEASUREMENT OF RESIDUAL STRESS	344
AN X-RAY INVESTIGATION OF FATIGUE BEHAVIOR OF COLD WORKED ALUMINUM	354
IMPROVED TECHNIQUES OF LATTICE PARAMETER MEASUREMENTS USING TWO X-RAY BEAMS	367
INTENSITY CORRECTION FACTORS FOR X-RAY DIFFRACTION MEASUREMENTS OF RESIDUAL STRESS	379
CRYSTAL DISTORTION ASSOCIATED WITH MAGNETIC ORDERING IN ALPHA IRON OXIDE AND MANGANESE CARBONATE	390
THE EFFECTS OF SELF-IRRADIATION ON THE LATTICE OF $^{238}\text{(80\%)\text{PuO}_2\text{ II}}$	396
AUTHOR INDEX	401
SUBJECT INDEX	403