

CONTENTS

Preface	
Introduction	
Welcome Address	
Opening Address	
Welcome Speech	

I. General Reviews

Mass Spectroscopic Researches in Nuclear Physics and Isotope Cosmology	H. HINTENBERGER	3
The Present Status of Atomic Mass Determination	H. E. DUCKWORTH	26
Mass Spectroscopic Researches on Atomic and Molecular Collisions	H. EWALD AND W. SEIBT	39
Application of Mass Spectroscopy to Upper Atmosphere and Space Research	A. O. C. NIER	60
Recent Advances in Organic Mass Spectrometry	F. W. McLAFFERTY	70

II. Ion Optics, Instrumentation, Techniques and Analysis

Ion Optics	A. J. H. BOERBOOM	83
Parabola Spectrographs with 2 and 3 Fields and the Planned Fission Particle Parabola Spectrograph at Grenoble	H. EWALD	88
Theoretical and Experimental Comparisons of Quadrupole Mass Analyzers with Round and Hyperbolic Field-Forming Surfaces	W. M. BRUBAKER and W. S. CHAMBERLIN	98
Developments and Applications of Real-Time High Resolution Mass Spectrometry	A. L. BURLINGAME	104
Application of Mass Spectroscopy to the Analysis of Solids: A Review	R. E. HONIG	116
Quantitative Analysis of Solids by Spark Source Mass Spectrometry	A. J. AHEARN	150
Spark Source Mass Spectroscopy for Trace Analysis	G. H. MORRISON	158
High-Resolving Particle Spectrometers of Large Transmission	H. WOLLNIK	169
New Ion Optical Systems for a High-Resolution Mass Spectrometer	H. MATSUDA, S. FUKUMOTO and T. MATSUO	175
Image Aberrations of Third Order for Magnetic Sector Field	H. MATSUDA and H. WOLLNIK	181
Mattauch-Herzog-Type Mass Spectrographs with Independent Adjustment of Aperture and Energy Bandwidth	H. LIEBL	188
Increase of Resolving Power by the Multipassage Mass Spectrometer		

..... M. BARIL and M. FORTIN	194
Influence of Ion Initial Energies on the Discrimination in a Nier Ion Source Operating without an Auxiliary Magnetic Field and Neglecting the Space-Charge Effect	
..... J. CHANTREAU and R. VAUTHIER	198
Microprobe for the Ion Bombard Mass Analyzer	
..... H. TAMURA, T. KONDO, H. DOI, I. OMURA and S. TAYA	205
Analysis of Local Small Areas by an Ion Microanalyzer	
..... I. OMURA, H. TAMURA, T. KONDO and H. DOI	210
Application of the Ion Microprobe Mass Analyzer..	
..... C. A. ANDERSEN, H. J. RODEN and C. F. ROBINSON	215
Wide-Angle Mass Spectrometer	
..... E. W. BLAUTH and R. WEISSMANN	225
A Small High-Sensitive Mass Spectrometer	
..... I. TAKESHITA and F. NAKAO	231
A New 30cm Radius Mass Spectrometer for High Speed Accurate Isotopic Abundance Measurement	
..... H. KURASAWA, N. ANDO, T. SHIRAHASE and M. NAITO	236
A Time-of-Flight Mass Spectrometer with a 90° Electrostatic Energy Analyzer	
..... CHING-SHEN SU	245
Development of a Mass Spectrometer Equipped with Both a Convertible Knudsen Cell Ion Source and a R. F. Spark Ion Source	
..... E. WATANABE and M. NAITO	249
Production and Mass Spectrometric Analysis of Metallic Lithium Ion	
..... CHUL CHU LEE, YOUN KYU KOH and DO KYONG KIM	257
Quadrupole Mass Spectrometer Using Circular Concave Electrodes	
..... T. HAYASHI and N. SAKUDO	263
Simulation of Ion Trajectory in a Quadrupole Mass Filter	
..... T. KONDO, S. TAYA and I. OMURA	269
A General Expression of Ion Motion in Quadrupole Electric Field	
..... K. MAEDA, M. SAKIMURA and A. FUKUDA	273
Resolution of Mass Filter	
..... K. MAEDA, M. SAKIMURA and A. FUKUDA	277
On the Double Exposure Method with a Mattauch-Herzog-Type Double Focusing Mass Spectrometer and Rapid Precise Mass Measurement of Spectrum Lines Exceeding m/e 1000 with an Automatic Data Analyzer	
... T. KOMORI, T. KAWASAKI, T. AOYAMA, M. SHINO, M. TOGASHI and M. ARAI	281
Simplified Data Processing System for Mass Spectrometer	
..... T. TOMURA, M. KURODA, H. ITOH and H. TSUYAMA	286
Continuous Monitoring of Several Compounds with a Programmed Mass Spectrometer System	
..... H. U. D. WIESENDANGER and F. T. TAO	290
Experiences with a Low-Voltage Discharge Ion Source Applied to a Commercial Mass Spectrometer	
..... J. FRANZEN	296
Effects of Source Parameters on the Ion Intensity in a Triggered DC Spark Source Mass Spectrograph	
..... O. KAMMORI, N. YAMAGUCHI, K. SATO and R. SUZUKI	300
Measures to Improve the Reproducibility of R. F. Spark Source Mass Spectrometer and the Results	
..... E. WATANABE, M. NAITO and T. OTA	306

Mass Spectrographic Analysis of Oxide Powders	
..... J. KAI, Y. OGATA, K. OHI and M. WATANABE	314
Layer by Layer Analysis of Thin Films by Spark Source Mass Spectrometry	
..... U. S. CHUPAKCHIN and G. I. RAMENDIK	319
Relative Sensitivity Factor of Elements Contained in Graphite-Sample Electrodes for Spark-Source Mass Spectrometry	
..... F. KONISHI, N. NAKAMURA and K. KUSAO	323
Relative Sensitivity Coefficients for Negative Ions	
..... T. MAKITA, K. KODERA and H. KISHI	329
Recent Enhancement of Detectability in R. F. Spark Source Mass Spectrometer	
..... S. ENOMOTO and T. AOYAMA	334
Rapid Quantitative Impurity Analysis by Spark Source Mass Spectrometry Using Electrical Detection, Automatic Spark Control and On-Line Data Processing	
..... R. A. BINGHAM, P. POWERS and W. A. WOLSTENHOLME	339
Analytical Improvements in Spark Source Mass Spectrometry	
..... P. VALERIANO and J. VASTEL	351
High Speed Automatic Data Analysis for Spark Ion Source Mass Spectrometry	
..... M. SAITO and H. HIGASHINO	358
Mass Spectrographic Analysis of Nonconducting Solids	
K. G. ORZHONIKIDZE, V. A. MELASHVILI, G.G. SIKHARULIDZE and	
..... V. M. GLINSKIKH	362
Application of Mass Spectrometry in Iron and Steel Industry	
..... L. COCHET, G. HEITZ, D. JORRE and F. THOMAS	367
Analysis of Low Hydrocarbon Mass Spectra with Digital Computing Methods	
..... M. TSUDA	377

III. Isotope Separation, Isotope Ratio, Nuclear Physics and Isotope Cosmology

Enrichment of Lithium Isotopes by Ion Exchange	
..... Z. HAGIWARA and Y. TAKAKURA	383
Isotope Separation by Ion Exchange and Isotope Ratio Analysis by Gamma Spectrometer	
..... J. AALTONEN	390
Uranium Isotope Separation by Chemical Exchange	
..... J. SHIMOKAWA, G. NISHIO and F. KOBAYASHI	397
Recent Improvements in Precise and Absolute Isotope Ratio Measurements	
..... E. ROTH, R. BIR and B. HAGEMANN	403
A Variable Geometry Separator and Low Energy Heavy Ion Accelerator	
..... J. H. FREEMAN	420
The Development of a Uranium Isotopic Analytical Program at the USAEC Feed Materials Production Center	
..... R. D. OHLINGER	431
Performance of Simplified Molecular Beam Ion Sources for Uranium Isotope Mass Spectrometers	
..... L. A. SMITH and A. LANGDON	450
Difficulties in Measuring the Isotopic Abundances of Calcium with a Mass Spectrometer	
..... K. G. HEUMANN, K. H. LIESER and H. ELIAS	457
Burnup Determination of Nuclear Fuel	
..... K. INOUE, K. TANIGUCHI, T. MURATA, H. MITSUI and A. DOI	461
Mass Spectrometry in Radiation Chemistry Measurements	
..... H. W. WILSON and W. M. SCOTT	466

Mass Calibration Method for Mass Spectrograph	S. MATSUMOTO	470
Masses of H, D, ^{16}O and ^{32}S Determined with Large Dispersion Mass Spectrometer	H. MATSUDA, S. FUKUMOTO and T. MATSUO	477
The Mass Difference Measurement of ($^{12}\text{C}_2\ ^1\text{H}_4 - ^{12}\text{C}\ ^{16}\text{O}$), ($^{12}\text{C}_2\ ^1\text{H}_4 - ^{14}\text{N}_2$), ($^{14}\text{N}_2 - ^{12}\text{C}\ ^{16}\text{O}$) and ($^{12}\text{C}_2\ ^1\text{H}_4 - ^{12}\text{C}_2\ ^2\text{D}_2$) Doublets	H. NAKABUSHI, I. KATAKUSE and K. OGATA	482
Mass Measurements of ^{130}Te , ^{130}Xe , ^{128}Te , ^{128}Xe and ^{126}Te and the Current Status of the Lock-in Amplifier Method	D. P. KERR and K. T. BAINBRIDGE	490
Atomic Mass Measurements of the Light Rare Earths	M. C. HUDSON and W. H. JOHNSON, JR.	495
Mass Spectrometric Detection of ^{82}Se -Double Beta Decay	T. KIRSTEN, H. W. MÜLLER and E. NORTON	501
Applications of Electromagnetic Isotope Separators to Nuclear Physics	K. O. NIELSEN	506
Fast Separation of Heavy Particles by Electromagnetic Gas-Filled Mass Separators	P. ARMBRUSTER, J. EIDENS, J. W. GRÜTER and H. LAWIN	520
On-Line Mass Spectrometry	R. BERNAS	535
Gas Discharge Ion Source for an Electromagnetic Mass-Separator On-Line with a Heavy Ion Cyclotron	N. I. TARANTIN, A. P. KABACHENKO, A. V. DEMYANOV and N. S. IVANOV	548
Mass Spectrometry Study of Rare Earths Produced by Nuclear Reactions Induced by Heavy Ions	NGUYEN-LONG-DEN, M. DE SAINT SIMON and G. BOUISSIERES	562
Survey of Results Obtained with Isotope-Separator-On-Line Arrangements	G. RUDSTAM	567
Results on Recent Work in Mass Spectroscopic and Nuclear Physics Research at the Reactor Centre Seibersdorf	M. J. HIGATSBERGER	576
On the Early Stage of the Sun	C. HAYASHI	586
Origin of Elements in the Solar System	S. HAYAKAWA and T. MATSUMOTO	591
Xenon Problems in Meteorites: A Review	J. H. REYNOLDS	594
Induced Non-Volatile Nuclides in Meteorites	MASAKO SHIMA	608
Mass Spectroscopy and Earth Science	L. T. ALDRICH, S. R. HART and T. E. KROGH	621
Microbiological Isotope Fractionation in Springs of Western Canada	H. R. KROUSE, F. D. COOK, A. SASAKI and V. SMEJKAL	629
Oxygen Isotopes as Climatic Indicators	W. DANSGAARD and H. TAUBER	640
Distribution of Some Stable and Long-lived Nuclides Produced by Cosmic-Rays in the Iron Meteorite Grant	M. IMAMURA, MASAKO SHIMA and M. HONDA	647
The Study of Helium Isotopic Abundance in the Samples with Small Helium Content	I. A. ALIMOVA, B. A. MAMYRIN, V. N. GARTMANOV and B. S. BOLTENKOV	652

Laser Microprobe Mass Spectrometry with Applications to Meteorite Research	G. H. MEGRUE	654
Mass Spectrographic Determination of Trace Elements in Meteorites	H. HINTENBERGER and W. BERGHOF	657
Strontium and Lead Isotopes of Volcanic Rocks in Japan	H. KURASAWA	666
Rb-Sr Isotopic Studies on Some Granitic Rocks in Central Japan	T. SHIRAHASE	671
The Use of Obsidian for K-Ar Dating	I. KANEOKA	675
K-Ar Dating on Some Metamorphic and Volcanic Rocks in Japan	Y. UEDA, K. AOKI and H. ONUKI	678
The Mass Spectrometric Analysis of Subpicogram Quantities of Lead	I. L. BARNES, K. M. SAPPENFIELD and W. R. SHIELDS	682
Isotope Abundance Variation and the Evolution of the Earth and Meteorites	Y. SHIMAZU and T. URABE	688
Stable Carbon-Isotope Ratios in Meteoritic Organic Matter	D. A. FLORY and J. ORO	692
$^{80}\text{K}/^{41}\text{K}$ Variations in Granite and in Granite-Contact Regions	C. D. L. SCHREINER, A. A. VERBEEK and F. H. D. WELKE	700
Calcium Isotope Variations of Natural Samples	W. STAHL	707
Carbon Isotopes in Hydrological Processes	I. WENDT	712
Carbon Isotope Measurements on Natural Gases from North West Germany	W. STAHL	718
Relation between Deuterium and Oxygen-18 Contents in Rain Water	O. MATSUBAYA and Y. MIYAKE	724
$\text{H}_2^{18}\text{O}/\text{H}_2^{16}\text{O}$ variations in Snow and Ice of the St. Elias Mountain Ranges (Alaska-Yukon Border)	K. E. WEST and H. R. KROUSE	728
Sulfur and Oxygen Isotope Ratios in Gypsum and Barite from the Black Ore and Black Ore-Type Deposits in Japan	H. SAKAI and S. OSAKI	735
The Isotope Geochemistry of Thermal and Meteoric Waters from the Nasudake Volcanic Area, Tochigi Prefecture, Japan	M. KUSAKABE, H. WADA, S. MATSUO and Y. HORIBE	739

IV. Chemical Physics and Physical Chemistry

Determination of Bond Dissociation Energies from Photoionization Efficiency Curves	A. J. C. NICHOLSON	745
Photoionization of Diatomic Molecules near the Threshold	T. KANEKO, I. OMURA, Y. YAMADA and K. TANAKA	751
Recent Studies in Photoelectron Spectrometry	G. R. BRANTON, D. C. FROST, T. MAKITA, C. A. McDOWELL and I. A. STENHOUSE	756
Photoionization of Ozone with Mass Analysis	G. R. COOK	761
Atomic and Molecular Structure Observed by Electron Impact		

..... P. MARMET, P. MARCHAND and C. PAQUET	765
Ionization of Metal Atoms by Electron Impact	
..... S. OKUDAIRA, T. NAGATA, Y. OKUNO, Y. KANEKO and I. KANOMATA	769
Ionization Methanol by Electron Impact	
..... G. J. KRIGE and S. M. GORDON	775
Photoionization Studies and Thermodynamic Properties of some Halogen Molecules	
..... V. H. DIBELER	781
Ionization of Alkyl Free Radicals Using a Double-Hemispherical Electron Velocity Selector	
..... F. P. LOSSING, K. MAEDA and G. P. SEMELUK	791
Franck-Condon Principle for the Ionization of Polyatomic Molecules	
..... H. M. ROSENSTOCK and R. BOTTER	797
Interaction Range Aspects of Chemi-Ionization	
..... S. E. NIELSEN and R. S. BERRY	807
Photoionization of Molecules: Pseudopotential Theories	
..... R. S. BERRY, B. SCHNEIDER and G. B. SHAW	811
Ionization Cross Sections of the Elements	
..... J. B. MANN	814
Studies of Dissociation of Hydrogen and n-Butane Metastable Ions by a Pulsed Ion Source	
..... A. MATSUMOTO, S. TANIGUCHI and T. HAYAKAWA	820
Metastable Ions in the Mass Spectra of N ₂ , NO, N ₂ O and NO ₂	
..... A. S. NEWTON and A. F. SCIAMANNA	828
Collision-Induced Ionization of Highly Excited Argon Ions	
..... K. OKUNO, Y. KANEKO and I. KANOMATA	830
Study on Dissociation Process by Double Electron Beam Instrument	
..... M. TSUCHIYA, F. J. PRESTON, H. EGUCHI and H. J. SVEC	837
Studies of Negative Ions from Metal Complexes	
..... R. W. KISER	844
Molecular-Negative-Ion Formations of Acetonitrile by Collision of Highly Excited Atoms	
..... T. SUGIURA and K. ARAKAWA	848
Photoelectron Spectroscopy	
..... C. A. McDOWELL	854
Recent Progress in Electron Impact Spectroscopy	
..... H. EHRHARDT	860
Recent Theoretical Studies of Low-Energy Electron Molecule Scattering	
..... K. TAKAYANAGI	872
Electron-Ion Collision Studies with Superimposed Beams	
..... L. P. THEARD	875
Proton-Nitrogen Collisions Leading to the Production of Metastable 2s Hydrogen Atoms	
..... D. H. JAECKS, D. H. CRANDALL and R. H. MCKNIGHT	881
Total Cross Sections in Molecular Charge Transfer Reactions with Diatomic Neutrals	
..... D. SMITH and L. KEVAN	883
Collision-Induced Dissociation of (HeH ⁺)	
..... J. SCHOPMAN, A. K. BARUA and J. LOS	888
The Interaction of K ⁺ (150–4000eV) and Cl [−] (2400–4000eV) with Noble Gases	
..... A. J. H. BOERBOOM and H. VAN DOP	897
Charge Transfer between Ar ⁺ and Ar: Time-of-Flight Analysis of Product Ions	
..... J. F. PAULSON	908
Energy Distribution in Ionic Decomposition Processes	
..... J. L. FRANKLIN and M. A. HANEY	909
Mechanisms of Collision-Induced Dissociation of Fast Ions	

.....J. DURUP	921
Mechanisms in Some Ion-Neutral Reactions	
.....J. F. PAULSON	935
Collision-Induced N_2^+ Dissociations	
.....W. SCHULTZ, B. MEIERJOHANN, W. SEIBT and H. EWALD	939
Drift Tube Mass Spectrometry	
.....Y. KANEKO, N. KOBAYASHI and I. KANOMATA	944
Ionization of n-Butane by Organic Ion Bombardment	
.....E. MITANI, H. TSUYAMA and M. ITOH	949
Rearrangement Ion-Molecule Reaction Involving Negative Ions	
.....J. MIZUNO and J. C. Y. CHEN	953
The Spectator Stripping Mechanism in Ion-Molecule Reactions	
.....R. W. ROZETT	958
Ionization of Atoms by Collision with Excited Atoms	
.....T. WATANABE, M. MORI, H. NAKAMURA and H. FUJII	963
The Reactions of N^+ with CO at Low Energies	
.....E. MURAD	968
Ion-Cyclotron Resonance Study of the Kinetic Energy Dependence of Ion-Molecule Reaction Rates in Methane, Hydrogen, and Rare Gas-Hydrogen Mixtures	
.....R. P. CLOW and J. H. FUTRELL	970
The Reactions of C^+ with Methane	
.....P. J. SULLIVAN, R. W. ROZETT and W. S. KOSKI	977
Reactions between Nitrogen Oxides Ions and Alkenes by a Two-Stage Mass Spectrometer	
.....S. YANAGISAWA, T. SHIRAI, Y. KUDO and T. WARABISAKO	981
Ion-Molecule Reactions of Ethylene Oxide and Trioxane	
.....M. KUMAKURA and T. SUGIURA	988
Ion-Polar Molecule Reactions: Hydrogen Atom and Ion Transfer in the Methanol-Acetaldehyde System	
.....T. O. TIERNAN, L. J. LEGER and G. G. MEISELS	993
Mass and Phase Spectrometry in Modulated Beam Experiments	
.....W. L. FITE	1001
The Interaction of Heavy Particles with Metal Surfaces	
.....J. KISTEMAKER and D. ONDERDELINDEN	1013
Mass Spectrometry of Free Radicals and its Application in the Study of Hydrogen Atom Reactions	
.....V. L. TAL'ROSE, G. K. LAVROVSKAYA, A. F. DODONOV and I. I. MOROSOV	1022
Ion-Molecule Reaction of Methane Studied by Time-of-Flight Mass Spectrometer	
.....S. TSUCHIYA, F. ISHIHARA and T. HIKITA	1048
Proton Transfer Reactions from CHO^+ and CDO^+ to Alkenes and Cycloalkanes	
.....T. O. TIERNAN and A. K. BHATTACHARYA	1053
Reaction of Methanol with Accelerated Rare-Gas Ions	
.....T. KOTOYORI, M. TAKAHASHI and A. ICHINOSE	1063
Mass Spectrometer Measurements of Ionospheric Composition	
.....J. H. HOFFMAN	1068
Negative Ion and Neutral Fragment Spectra of Some Cobalt and Manganese Carbonyl Derivatives	
.....F. E. SAALFELD, M. V. McDOWELL and A. G. MACDIARMID	1073
Metastable Transitions in $C_2H_2^+$, $C_2D_2^+$, $C_2H_4^+$, $C_2HD_3^+$ and $C_2D_4^+$	
.....R. BOTTER, R. HAGEMANN, G. KHODADADI and H. M. ROSENSTOCK	1079
Secondary Ion Yields in a Sputtering Mass Spectrometer	

..... H. DOI, H. TAMURA, I. OMURA, T. KONDO and S. TAYA	1089
Temperature- and Field-Dependence of Cl^- Emission from CsCl on a Heated Nb Surface	
..... H. KAWANO and H. INOUE	1094
Electron Probe Surface Mass Spectrometry	
..... D. LIGHTMAN	1102
Study of Surface Oxidation of Tungsten by the Secondary Ion Emission Method	
..... V. F. RYBALKO, V. JA. KOLOT and JA. M. FOGEL	1109
Photochemical Study by Organic Photosensitizers	
..... S. YAMASHITA and T. HAYAKAWA	1113
Mass Spectrometric Thermal Analysis of Polyethylene Terephthalate	
..... M. KANAZASHI, T. OZAWA and R. SAKAMOTO	1119
Mass Spectrometric Studies of Plutonium Compounds at High Temperatures	
V. The Plutonium-Carbon System	
..... R. A. KENT	1124
Mass Spectrometric Investigation of the Vaporization of Selected Inorganic Systems	
..... G. DE MARIA	1132
The Vapor Pressure of Uranium (IV) Sulphide in the Temperature Interval 2100–2500°K	
..... K. A. NATER	1136
A Mass Spectrometric Approach to Angular Distribution Measurements of Molecular Effusion	
..... R. T. GRIMLEY	1144
Pyrolysis of Hydrocarbons in Knudsen Cells	
..... G. N. SPOKES and S. W. BENSON	1146
Recent Studies on FI Mass Spectrometry	
..... H. D. BECKEY	1154
Mass Spectrometric Studies of Effects Connected with MeV Ion Channeling in Metal Monocrystals	
..... M. KAMINSKY	1167

V. Organic Chemistry and Biochemistry

Mass Spectra and Ionization Potentials of Benzene Chromium Tricarbonyl Derivatives	
..... J. MÜLLER and P. GÖSER	1175
Multiply Charged Ions in Organic Mass Spectrometry	
..... M. E. WACKS and W. M. SCOTT	1181
Detection of Metastable Ions Using a Double Focusing Mass Spectrometer	
..... H. TSUYAMA, E. MITANI, M. ITOH and J. OKAMOTO	1188
An Interpretation of Mass Spectra of Substituted Aromatic Compounds by Simple LCAO MO Calculation	
..... S. TAJIMA, N. WASADA, T. TSUCHIYA and Y. NIWA	1192
Mass Spectra of Bicyclo [3.3.1] Nonane Derivatives	
..... J. K. MACLEOD, M. VEGAR and R. J. WELLS	1197
Electron Distribution of Electron-Bombarded Alkylamines and its Correlation with the Probability of Bond-Scission in their Mass Spectra	
..... K. HIROTA, I. FUJITA, M. YAMAMOTO and Y. NIWA	1203
Alteration of the Fragmentation Pattern of Organic Molecules by Formation of Metal Complexes	
..... H. BUDZIKIEWICZ	1210
Some Problems in Organic Mass Spectrometry	
..... R. I. REED	1214

New Techniques in Chromato-Mass Spectrometry

- V. L. TAL'ROSE, V. D. GRISHIN, V. E. SKURAT and G. D. TANTSYREV 1218
- Mass Spectrometric Determination of Geometric Isomers of α , β -Unsaturated Carboxylic Acids
..... W. J. RICHTER and A. L. BURLINGAME 1227
- GC-MS with the Varian Mat CH-7
..... D. H. HUNNEMAN 1233
- Mass Spectrometry of Brominated Products with Potential Antibacterial Activity
..... A. I. COHEN, S. L. NEIDLEMAN and J. A. LAST 1239
- Applications of High Resolution and Ultra High Resolution Mass Spectrometry in Organic Chemistry
..... M. BARBER, T. R. KEMP and W. A. WOLSTENHOLME 1244
- Unimolecular and Collision-Induced Metastable Ion Decompositions
F. W. McLAFFERTY, R. A. KORNFELD, D. J. McADOO, H. D. R. SCHÜDDAMAGE
..... and J. S. SMITH 1254
- Analysis of Trimethylsilyl Derivatives of Carbohydrates by Mass Spectrometry
..... D. C. DEJONGH, J. D. HRIBAR and T. RADFORD 1257
- Mass Spectra of Bakkenolides and their Derivatives
..... T. KATO, K. SHIRAHATA and Y. KITAHARA 1259
- The Fragmentation of Steroidal Diamines in the Mass Spectrometer
..... P. LONGEVIALLE 1266
- Computer-Based Interpretation of Nucleoside Mass Spectra
..... R. N. STILLWELL, K. LYMAN, N. EARLE and J. A. McCLOSKEY 1273
- Mass Spectrometric Identification of the Metabolites of 3-(p-Chlorophenyl)-3-hydroxy-2,2-dimethylpropyl Carbamate
..... S. R. SHRADER, J. T. REES, F. HADLEY and H. W. RUELIUS 1275
- Naive Analysis of Structure
..... R. I. REED and D. H. ROBERTSON 1281
- Role of Mass Spectrometry in an Automated Structure Elucidation System
..... Y. ISHIDA, Y. KUDO, M. SAKAMOTO, H. ABE and S. SASAKI 1286

VI. Supplementary Papers

Isotope Abundance Variation of Sulphur from Polish Ores

- W. ŻUK, E. CHOMICZ, ST. HALAS and J. SIWIEC 1291
- Recent Mass Determinations with the Argonne 100-Inch-Radius Mass Spectrometer
..... C. M. STEVENS and P. E. MORELAND, JR. 1296
- Masses of Stable Isotopes of Thallium
..... R. A. DEMIRKHANOV and V. V. DOROKHOV 1301
- Interpretation of Recent Double Beta Decay Results
..... M. H. SHAPIRO 1307
- Heterogeneous Reactions of Molecular Beams by Mass Spectrometry: A Method of Simultaneous Determination of the Reaction Probability and the Accommodation Coefficient
..... H. G. LINTZ, A. PENTENERO and P. LE GOFF 1312
- Electron Impact Ionization of Positive Ions by a Superimposed Beam Technique
..... P. MAHADEVAN 1315
- Mass Spectrometric Study of the Oxygen-Rhenium System
..... B. WEBER, J. FUSY and A. CASSUTO 1319