

CONTENTS

EMISSION AND ATOMIC ABSORPTION SPECTROSCOPY

1.1	Rapid and Inexpensive Sampling Technique for Emission Spectroscopic Analysis of Thin Films, J. Dieleman, A. W. Witmer, J. C. M. A. Ponsioen, and C. P. T. M. Damen	1
1.2	A Computer-Controlled Sampler for Atomic Flame Spectroscopy, W. Sunderland, R. S. Hodge, W. G. Boyle, and E. Fisher	5
1.3	The Preparation of Metal Ingots for Use as Chemical and Spectrographic Standards, S. L. Odess and G. S. Golden	9
1.4	Qualitative Analysis of Precipitates by Graphite Filter Methods, M. S. Wang	13
1.5	An Improved Spectrographic Evaporating Dish, R. E. Rainford	15
1.6	A Rotating-Disk Sample Holder for the Sparking of Flat-Metal-Disk Samples, P. E. Walters and T. Monaci	16
1.7	Vented Cupped Electrodes, L. Toft and G. A. Roworth	22
1.8	Suggestions and Comments on: "Vented Cup Electrodes." J. B. Marling	23
	Reply to Dr. Marling, L. Toft and G. A. Roworth	24
1.9	A Cylindrical Sector Driven by Either Water or Air, J. W. Mellichamp and L. L. Wilcox	25
1.10	A Symmetrical Cylindrical Rotating Step Sector, H. G. Yuster	28
1.11	Prevention of Laser Microprobe Staining of Analyzed Metals, H. N. Barton and J. Benallo	35
1.12	A Simple Multiport Atomic Absorption Burner Head, M. S. Wang	37

1.13	Modification of a Commercial Carbon Rod Flameless Atomizer to Accept Graphite Tubes, R. W. Morrow and R. J. McElhanev	39
1.14	Tuning Stubs as an Aid to Coupling RF Energy to Electrodeless Discharge Lamps, W. G. Schrenk, S. E. Valente, and K. E. Smith	44
1.15	A Compact Gas Jet for Optical Emission Spectroscopy, K. J. Curry and E. F. Cooley	52
1.16	Electrode Heater, P. B. Adams, E. C. Goodrich, and J. S. Sterlace	58
1.17	A Simple Modification of a Flame Photometer for Routine Trace Potassium Analysis, W. R. Knolle	59
1.18	Mounting for New Safety Door for Perkin-Elmer Model 303 Atomic Absorption Spectrophotometer, L. T. Sennello	62
1.19	Selective Filtration in Optical Emission Spectroscopy, A. Szule	65
1.20	Simple Inexpensive Method of Time Resolved Spectroscopy, R. A. Koehler and F. J. Morgan	69
1.21	Photoelectric Time Differentiation in Laser Microprobe Optical Emission Spectroscopy, W. J. Treytl, J. B. Orenberg, K. W. Marich, and D. Glick	74
1.22	A Photographic Plate Processing System, T. B. Griswold, W. H. Dennen, and W. H. Blackburn	81
1.23	A Microphotometer Digital Readout System, R. E. Mason	86

INFRARED SPECTROSCOPY

2.1	Microsampling for Infrared and Emission Analyses, P. W. H. Schuessler	93
2.2	Cold Pressing Solid Samples in a Wax Disk for Far Infrared Analysis, M. E. Peterkin	95
2.3	A Manual Rectangular KBr Pellet Press, M. Van Swaay and E. M. Winkler	97
2.4	An Improved Infrared Microcell, E. C. Sunas, J. F. Williams, C. Walker, and D. Kidd	104
2.5	Infrared Cells for Salt Solutions, W. F. Edgell	108
2.6	Far Infrared Sealed Liquid Cell with Polyethylene Windows, A. T. Tsatsas and W. M. Risen, Jr.	111
2.7	An Inert Infrared Cell for Measuring Quantitative Solution Spectra of Carbonium Ions and Other Reactive Species, T. J. Broxton, J. Chippindall, L. W. Deady, and R. Topsom	115
2.8	A Simple Evacuatable, Double-Beam Infrared Hot Cell Assembly, H. W. Wilson	118

CONTENTS

ix

2.9	A Novel Infrared Gas Cell, A. B. Harvey, F. E. Saalfeld, and C. W. Sink	124
2.10	A Diamond-Window Infrared Short Path Length Cell for Corrosive Liquids, H. H. Hyman, T. Surles, L. A. Quarterman, and A. I. Popov	127
2.11	A New Gasketing Technique for Studies with the High-Pressure Diamond Anvil Cell, J. R. Ferraro and A. Quatrochi	130
2.12	The Application of the Quartz Crystal Microbalance for Monitoring Rates of Deposition of High Temperature Species in Matrix Isolation Infrared and Raman Spectroscopy, M. Moskovits and G. A. Ozin	133
2.13	Internal Reflectance Spectroscopy. III. Micro Sampling, A. C. Gilby, J. Cassels, and P. A. Wilks, Jr.	135
2.14	Infrared Spectra of Deuterated Solvents, N. L. McNiven and R. Court	148
2.15	Measurement of Aqueous Solution Temperatures in Infrared Spectroscopy, M. Cormier and J. L. Thompson	159
2.16	Ultrahigh Sensitivity Detection System for Far Infrared Spectrophotometers, W. M. Poteet and R. D. Feltham	162
2.17	Derivative Traces in Infrared Fourier Transform Spectroscopy, M. J. D. Low and H. Mark	167
2.18	On Resolution Enhancement of Line Spectra by Deconvolution, A. Goldman and P. Alon	173
2.19	Negative Skin Sensitization Text with KRS-5, R. P. Oertel and E. A. Newmann	177

MASS SPECTROSCOPY

3.1	Trapping Volatiles from GLC for Injection into a Mass Spectrometer, M. G. Moshonas and P. E. Shaw	181
3.2	A Simple System for Transferring Air-Sensitive Compounds into Capillaries from Schlenk Tubes, W. G. Eggerman	184
3.3	Construction of a Leak-Inlet System for the LKB 9000 Gas Chromatograph-Mass Spectrometer, R. E. Hawk and R. W. Jennings	186

NUCLEAR MAGNETIC RESONANCE

4.1	A New NMR Microtechnique, L. V. Haynes and C. D. Sazavsky	191
4.2	A Nonbreakable Nuclear Magnetic Resonance Sample Container for Radioactive Materials, L. R. Crisler	198
4.3	A Convenient Device for Removing Dissolved Oxygen from NMR Samples, N. Mandava	202

4.4	A Method for Capping Nuclear Magnetic Resonance Tubes, R. Foester.....	205
4.5	Nuclear Magnetic Resonance Tube Washer, D. W. Mastbrook and E. A. Hansen	207

RAMAN SPECTROSCOPY

5.1	Sampling Techniques for Raman Spectroscopy of Minerals, L. E. Makovsky.....	211
5.2	Aluminum Metaphosphate as a Hydrofluoric Acid Resistant Raman Cell Materials, J. E. Griffiths.....	215
5.3	A Cell for Resonance Raman Excitation with Lasers in Liq- uids, W. Kiefer and H. J. Bernstein	219
5.4	Multiple Sampling Raman Cold Cell, J. B. Bates	223
5.5	A Windowless Cell for Laser-Raman Spectroscopy of Molten Fluorides, A. S. Quist	226
5.6	A Laser-Raman Cell for Pressurized Corrosive Gas and Liq- uids, J. C. Cornut and P. V. Huong	232
5.7	Thermostating Capillary Cells for a Laser-Raman Spectro- photometer, G. J. Thomas, Jr. and J. R. Baryliski.....	236
5.8	Low Temperature Cell for Measurement of Raman Spectra, J. Štokr and B. Schneider	239
5.9	Variable Temperature Sample Holder for Raman Spectros- copy, F. A. Miller and B. M. Haney.....	243
5.10	A Furnace for Molten Salt Raman Spectroscopy to 800°C, A. S. Quist	245
5.11	A Simple Furnace for Obtaining High Temperature Raman Spectra, G. M. Bègun	252
5.12	Modification of a Commercial Argon Ion Laser for Enhance- ment of Gas Phase Raman Scattering, G. O. Neely, L. Y. Nelson, and A. B. Harvey.....	256
5.13	Polarized Raman Scattering from Small Single Crystals, B. I. Swanson.....	262
5.14	On "Scrambler Plates" Used to Depolarize Visible Radiation, L. A. Rahn, P. A. Temple, and C. E. Hathaway	269
5.15	On "Scrambler Plates" Used to Depolarize Visible Radiation P. R. Reed and D. O. Landon	276
5.16	A Constant Spectral Slit Width Servo, C. D. Allemand	278
5.17	A Method for Eliminating Resonance Fluorescence Ef- fects in Raman Studies of Some High Temperature Vapors: Raman Spectra of BiCl ₃ from 450 to 800°C, P. T. Cun- ningham and V. A. Maroni	283
5.18	Computer Time Averaging of Laser Raman Spectra for Matrix-Isolated Species, D. A. Hatzenbuehler, R. R. Smard- zewski, and L. Andrews	287

ULTRAVIOLET AND VISIBLE SPECTROSCOPY

- 6.1 Construction and Use of Reflecting Multiple-Pass Absorption Cells for the Ultraviolet, Visible, and Near Infrared, J. H. Gould 293
- 6.2 A Long Path Length, Low Temperature Multiple Traversal Cell, A. Biernacki, D. C. Moule, and J. L. Neale 302
- 6.3 Microspectrophotometer Cells of Fused Construction, W. T. Carnall and P. R. Fields 307
- 6.4 An Investigational Technique for the Behavior of a Contaminated Optical Surface in the Near Ultraviolet-Visible-Near Infrared, W. W. Moore, Jr., P. W. Tashbar, and G. L. Burns 310
- 6.5 Optimum Reference Wavelength Selection in Multi-Wavelength Spectrophotometry of Turbid Media, J. E. Stewart 317
- 6.6 Visible Spectroscopy of the Aging Process in Passive N_2 - CO_2 -He-Xe Laser Cells, J. W. Mellichamp and J. C. Bickart. 323

X-RAY SPECTROSCOPY

- 7.1 A Simple, Fast Technique for the Sample Preparation of Composite Metal Powders for Analysis by X-Ray Fluorescence, B. Brachfeld 329
- 7.2 Modified Micro Sample Support for X-Ray Emission Spectrography, D. A. Nickey and J. O. Rice 331
- 7.3 An Improved Liquid Cell Cap for X-Ray Fluorescence Analysis, S. Bonfiglio. 333
- 7.4 Adaptation of the X-Ray Milliprobe for the Examination of Small Single Crystals Obtained from Lunar Samples, H. T. Evans, Jr. and R. P. Christian 334
- 7.5 Selected Area X-Ray Luminescence Spectroscopy with the X-Ray Milliprobe, S. E. Sommer 339

MISCELLANEOUS

- 8.1 A Dissolving Technique for Thin Platelet Preparation from Bulk Single Crystals, A. J. Fischinger 343
- 8.2 A Simple, Inexpensive, Versatile Optical Bench for Spectroscopic Research, V. Svoboda, W. P. Townsend, and J. D. Winefordner 349
- 8.3 Reduction of Grating Spectrograms, T. Gotó, M. S. Gautam, and Y. N. Joshi 351
- 8.4 A Simple Method for Reducing Astigmatism from Off-Axis Concave Spherical Mirrors, D. W. Steinhaus and B. Brixner 356

8.5	A Polarization-Independent Pulsed-Laser Energy Monitoring System with Analog Readout, E. H. Piepmeier	360
8.6	Pen Adaptor for Recording Spectrometers, J. P. Luongo	367
8.7	A Convenient Method for Vacuum Deoxygenation of Electron Spin Resonance Samples, K. Tanaka, R. P. Quirk, G. D. Blyholder, and D. A. Johnson	370
8.8	An Internal Standard for Electron Spectroscopy for Chemical Analysis Studies of Supported Catalysts, J. L. Ogilvie and A. Wolberg	372
	Applied Spectroscopy Reference Index	379
	Author Index	381
	Cumulative Subject Index	385