

Table of Contents

Part I X-Ray Microscopy Projects

X-Ray Microscopy in Berkeley

- W. Meyer-Ilse, H. Medecki, J. T. Brown, J. M. Heck, E. H. Anderson,
A. Stead, T. Ford, R. Balhorn, C. Petersen, C. Magowan, D. T. Attwood
(With 6 Figures)I - 3

X-Ray Microscopy in Aarhus

- J. Abraham, R. Medenwaldt, E. Uggerhøj, P. Guttmann, T. Hjort, J. Jensenius,
T. Vorup-Jensen, F. Vollrath, E. Søgaard, J. Tyge Møller (With 8 Figures)I - 13

Cryo X-Ray Microscopy Experiments

with the X-Ray Microscope at BESSY

- G. Schneider and B. Niemann (With 8 Figures)I - 25

Development of a Cryo Scanning Transmission

X-Ray Microscope at the NSLS

- J. Maser, C. Jacobsen, J. Kirz, A. Osanna, S. Spector, S. Wang,
J. Warnking (With 4 Figures)I - 35

The X-Ray Microscopy Facility Project at the ESRF

- J. Susini and R. Barrett (With 4 Figures)I - 45

The X-Ray Microscopy Project at BESSY II

- P. Guttmann, G. Schmahl, B. Niemann, D. Rudolph, G. Schneider,
J. Bahrdt (With 7 Figures)I - 55

Imaging Soft X-Ray Microscopy with Zone Plates in Parallel Use of Optical Microscope for Wet Bio-Specimens in Air at UVSOR

- N. Watanabe, A. Hirai, K. Takemoto, Y. Shimanuki, M. Taniguchi,
E. Anderson, D. Attwood, D. Kern, S. Shimizu, H. Nagata,
K. Kawasaki, S. Aoki, Y. Nakayama, H. Kihara (With 7 Figures)I - 65

All contributions listed here can be found on the compact disk attached to the book, the contributions without a * can also be found as a black & white printed version in the book.

High-Resolution Three-Dimensional Imaging with an X-Ray Microscope J. Lehr (With 2 Figures)	I - 71
X-Ray Microtomography Using Interferometric Phase-Contrast U. Bonse, F. Beckmann, F. Busch, O. Günnewig (With 4 Figures)	I - 77
Differential Phase Contrast X-Ray Microscopy G. R. Morrison and B. Niemann (With 5 Figures)	I - 85
A New Near-Field Scanning Transmission X-Ray Microscopy with 10-nm Resolution R. E. Burge, X-C. Yuan, J. N. Knauer (With 5 Figures)	I - 95
* Phase Contrast Experiments on the NSLS-X1A Scanning Microscope F. Polack, D. Joyeux, D. Phalippou (With 3 Figures)	I - 105
* Cryo X-Ray Microscopy in Amplitude and Phase Contrast G. Schneider, G. Schmahl, T. Schliebe, M. Peuker, P. Guttmann (With 6 Figures)	I - 111
* Conceptual Design of the Soft X-Ray Microscopy Beamline at Spring-8 H. Kihara (With 4 Figures)	I - 117
* Imaging Soft X-Ray Microscopy with Zone Plates at RITS SR Center A. Hirai, N. Watanabe, K. Takemoto, K. Nishino, E. Anderson, D. Attwood, D. Kern, S. Shimizu, H. Nagata, S. Aoki, Y. Nakayama, H. Kihara (With 8 Figures)	I - 123
* The Object Chamber Staying in Air at the Zone Plate X-Ray Microscope K. Takemoto, N. Watanabe, A. Hirai, Y. Nakayama, H. Kihara (With 4 Figures)	I - 129
* Image Quality Enhancement in X-Ray Microscopy J.-B. Sibarita, J. Lehr, J.-M. Chassery, M. Robert-Nicoud, P. Guttmann, G. Schmahl (With 5 Figures)	I - 135

* Signal Formation, Simulation and Inverse Problem
in Scanning Fluorescent X-Ray Microscopy
Using Focused Beams

M. V. Chukalina, N. G. Ushakov, S. I. Zaitsev (With 5 Figures)I - 141

* Soft X-Ray Microscopy Using Table-Top
Pinch Plasma Sources

R. Lebert, K. Bergmann, A. Engel, K. Gäbel, O. Treichel, G. Schriever,
C. Gavrilescu, W. Neff (With 6 Figures)I - 145

* Schwarzschild Microscopes for 18–20-nm Wavelength Range
with Submicron Resolution

I. A. Artioukov, A. V. Vinogradov, V. E. Levashov, I. J. Struk,
V. E. Asadchikov, Yu. S. Kas'yanov, R. V. Serov, V. V. Kondratenko,
A. I. Fedorenko, S. A. Yulin (With 3 Figures)I - 151

* A Table-Top Flash Contact X-Ray Microscope

H. Shimizu, T. Tomie, T. Majima, A. D. Stead, T. Ford, K. Miura,
M. Yamada, T. Kanayama (With 6 Figures)I - 157

* A Table-Top Grazing-Incidence Soft X-Ray Microscope
with a Laser-Produced Plasma Source

S. Aoki, T. Ogata, K. Iimura, N. Watanabe, Y. Yoshidomi, K. Shinada,
T. Kato (With 6 Figures)I - 163

* X-Ray Microscopy System with an Electronic Zooming Tube

K. Shinohara, A. Ito, H. Nakano, T. Honda, K. Yada (With 4 Figures)I - 169

* Progress Report on Time-Lapse X-Ray Microscopy

S. P. Newberry (With 1 Figure)I - 175

* Design Considerations for a Prototype Beam Position Monitor
for the X-Ray Microscopy Beamline ID21 at the ESRF

G. S. Dermody, C. J. Buckley, J. Susini, R. Barrett (With 3 Figures)I - 181

* Soft X-Ray Detector Calibration and Reflectometry Facilities
of the PTB at BESSY

D. Fuchs, S. Kraft, F. Scholze, G. Ulm (With 6 Figures)I - 187

Part II X-Ray Microscopy Applications

Visualization of Soil Colloids by X-Ray Microscopy J. Niemeyer, J. Thieme, G. Machulla (With 9 Figures)	II - 3
Aggregation of Colloids Observed by X-Ray Microscopy J. Thieme, J. Niemeyer, G. Machulla, U. Schulte-Ebbert (With 9 Figures)	II - 11
Interaction of Microorganisms with Soil Colloids Observed by X-Ray Microscopy G. Machulla, J. Thieme, J. Niemeyer (With 3 Figures)	II - 21
Applications of X-Ray Microscopy to the Analysis of Sperm Chromatin R. Balhorn, R. E. Braun, B. Breed, J. T. Brown, D. Evenson, J. M. Heck, J. Kirz, I. McNulty, W. Meyer-Ilse, X. Zhang (With 18 Figures)	II - 29
Mapping the Organic and Inorganic Components of Bone C. J. Buckley, N. Khaleque, S. J. Bellamy, M. Robins, X. Zhang (With 5 Figures)	II - 47
X-Ray Microscopy of Fluid Lipid Membranes B. Klösgen and P. Guttmann (With 4 Figures)	II - 57
X-Ray Microscopic Imaging of Magnetic Domains Using X-Ray Magnetic Circular Dichroism P. Fischer, T. Eimüller, G. Schütz, G. Schmahl, P. Guttmann, D. Raasch (With 6 Figures)	II - 69
X-Ray Holography of Fast-Frozen Hydrated Biological Samples S. Lindaas, B. Calef, K. Downing, M. Howells, C. Magowan, P. Pinkas, C. Jacobsen (With 10 Figures)	II - 75
Applications of Laboratory Soft X-Ray Systems A. G. Michette, C. J. Buckley, S. J. Pfauntsch, N. Khaleque, T. English, M. Folkard, B. D. Michael, G. Schettino, I. C. E. Turcu, R. Allott, N. Lisi (With 3 Figures)	II - 87
A Perspective on Biological X-Ray and Electron Microscopy C. Jacobsen, R. Medenwaldt, S. Williams (With 3 Figures)	II - 93

Carbon Index Measurement Near K Edge, by Interferometry

with Optoelectronic Detection

D. Joyeux and F. Polack (With 5 Figures)II - 103

*** Observation of Soot Particles in Engine Lubricants**

by Scanning Transmission X-Ray Microscopy

G. R. Morrison, W. D. Shi, A. D. H. Clague, J. T. Gauntlett, P. J. Shuff

(With 6 Figures)II - 113

*** Dynamical X-Ray Microscopy Studies**

of Clay Mineral Particles in Aqueous Media

T. Preis and J. Thieme (With 5 Figures)II - 117

*** Thermally Driven Shape Instabilities**

of Nb/Cu Multilayer Structures

P. Troche, J. Hoffmann, K. Heinemann, F. Hartung, G. Schmitz,

H. C. Freyhardt, D. Rudolph, J. Thieme, P. Guttmann (With 7 Figures)II - 123

*** Resolution Determination in X-Ray Microscopy**

J. M. Heck, W. Meyer-Ilse, D. T. Attwood (With 5 Figures)II - 129

*** Demonstration of the Differentiation**

of Two Calcium Phosphates by Soft X-Ray Microscopy

S. J. Bellamy, C. J. Buckley, X. Zhang, N. I. Khaleque (With 3 Figures)II - 137

*** Recent Progress with the Scanning Photoemission Microscope**

at the National Synchrotron Light Source

H. Zhang, G. R. Zhuang, H. Ade, C.-H. Ko, B. Winn, J. Kirz, D. Leta,

R. Polizzotti, S. Cameron, S. Hulbert, E. Johnson (With 4 Figures)II - 143

*** If Carbon Discrimination is more Important to Biologists**

than Resolution, Will Soft X-Ray Microscopy Become

a Useful Biological Technique?

A. D. Stead, P. A. F. Anastasi, J. T. Brown, J. Heck, T. Majima, W. Meyer-Ilse,

D. Neely, A. M. Page, S. Rondot, H. Shimizu, T. Tomie, E. Wolfrum,

T. W. Ford (With 5 Figures)II - 149

*** Use of Soft X-Rays to Image Hydrated and Dehydrated**

Bacterial Spores Using Either Soft X-Ray Contact Microscopy

or Soft X-Ray Transmission Microscopy

A. D. Stead, J. T. Brown, J. Judge, W. Meyer-Ilse, D. Neely, A. M. Page,

E. Wolfrum, T. W. Ford (With 5 Figures)II - 157

- *Development of a Stereo Imaging System for Soft X-Ray Contact Microscopy of Living Biological Material
A. D. Stead, R. Bagby, D. Neely, A. M. Page, S. Rondot, E. Wolfrum,
T. W. Ford (With 6 Figures)II - 165
- * Soft X-Ray Contact Microscopy of Living Biological Specimens
Using a Laboratory X-Ray Microscope
Employing Laser-Generated Plasmas
T. W. Ford, A. M. Page, H. Shimizu, T. Tomie, T. Majima, A. D. Stead
(With 6 Figures)II - 173
- *Performance of a Laboratory X-Ray Microscope,
Using Z-Pinch-Generated Plasmas, for Soft X-Ray
Contact Microscopy of Living Biological Specimens
T. W. Ford, A. M. Page, S. Rondot, R. Lebert, K. Bergmann, W. Neff,
C. Gavrilescu, A. D. Stead (With 6 Figures)II - 179
- * A Comparative Study of the Ultrastructure of Living Cells
of the Green Alga *Chlamydomonas* Using Both Soft X-Ray Contact
and Direct Imaging Systems and an Evaluation
of Possible Radiation Damage
T. W. Ford, A. M. Page, W. Meyer-Ilse, J. T. Brown, J. Heck, A. D. Stead
(With 7 Figures)II - 185
- * Soft X-Ray Resistance of *D. radiodurans*
H. Fujisaki, S. Takahashi, H. Kondo, Y. Kobayashi, H. Watanabe
(With 2 Figures)II - 191
- * Observations of Samples in Air with Spatial Resolution
of 0.5 μm with the Use of X-Ray Zooming Tube at 4–20 keV
T. Matsumura, K. Kinoshita, S. Tamura, N. Kamijo, Y. Ozaki, H. Kihara
(With 5 Figures)II - 195
- * A Wavefront Profiler as an Insertion Device
for Scanning Phase Contrast Microscopy
D. Joyeux and F. Polack (With 5 Figures)II - 201
- * Phase-Contrast X-Ray Microtomography:
Application to Human Cancerous Tissues
A. Momose, T. Takeda, Y. Itai, K. Hirano (With 3 Figures)II - 207

* Characterization of a Model Composite Material
with X-Ray Cone-Beam Microtomography

A. Shih, S. J. Pan, W. S. Liou, M. S. Park, W. Chang, G. Wang,
S. P. Newberry, H. Kim, D. M. Shinozaki, P. C. Cheng (With 6 Figures)II - 213

* X-Ray Microtomography Using Cone-Beam Geometry

S. J. Pan, W. S. Liou, A. Shih, W. Chang, M. S. Park, G. Wang,
S. P. Newberry, H. Kim, D. M. Shinozaki, P. C. Cheng (With 5 Figures)II - 219

* Radiation Damage Mechanisms in XRM:

A Physical Approach

J. Cazaux (With 3 Figures)II - 225

* Progress in Elemental Mapping

in X-Ray Projection Microscopy

S. Rondot and J. Cazaux (With 3 Figures)II - 231

* Total Reflection X-Ray Microscopy: First Results

D. Erre, H. Jibaoui, J. Cazaux (With 3 Figures)II - 237

* Dynamical Observation of the Intercalation Process of H_2SO_4

into Pyrographite by X-Ray Microscopy

D. Erre, E. Bourelle, B. Claude-Montigny, A. Métrot, J. Cazaux
(With 3 Figures)II - 243

* X-Ray Microscopy and Radiobiology

by Using an Excimer Laser Plasma Source

P. Albertano, D. Batani, M. Belli, A. Conti, R. Cotton, F. Flora,
A. Grilli, F. Ianzini, P. Di Lazzaro, T. Letardi, M. Moret, A. Nottola,
L. Palladino, A. Reale, L. Reale, A. Scafati, M. A. Tabocchini,
K. Vigli-Papadaki (With 4 Figures)II - 249

* Observation of the Inner Structures of Sea-Urchin Eggs

by Projection X-Ray Microscopy

K. Yada, K. Shinohara, Y. Hamaguchi (With 6 Figures)II - 255

* Subcellular Structure of Bacterial Cell

Observed by Flash Contact X-Ray Microscopy

T. Majima, H. Shimizu, T. Tomie, E. Miura, T. Kanayama, M. Yamada
(With 4 Figures)II - 261

* Effect of the Pulse Width of Flash X-Ray on the X-Ray Images
of Doublet Microtubules

H. Shimizu, T. Majima, T. Tomie, K. Miura, M. Yamada, T. Kanayama

(With 4 Figures).....II - 267

* Internal Structures of Small Animals and Tissues

Studied by Projection X-Ray Microscopy

S. Kumagai, T. Horikoshi, H. Chiba, K. Takahashi, D. Shoutsu,

H. Yoshimura, T. Mitsui (With 5 Figures)II - 273

* X-Ray Diffraction on Surface Acoustic Waves

and Application to X-Ray Imaging

R. Tucoulou, I. A. Schelokov, D. V. Roshchupkin, M. Brunel

(With 4 Figures)II - 279

* Holographic Projection with X-Rays

Using Computer-Generated Bi-level Masks

J. N. Knauer, A. K. Powell, R. E. Burge, P. Charalambous, M. T. Browne,

J. Bu, X. C. Yuan (With 3 Figures)II - 285

* Soft X-Ray Gabor Holography Using CCD Camera

N. Watanabe, K. Sakurai, A. Takeuchi, S. Aoki (With 9 Figures)II - 291

Part III **Microspectroscopy and Spectromicroscopy**

NEXAFS and X-Ray Linear Dichroism Microscopy

and Applications to Polymer Science

H. Ade (With 5 Figures)III - 3

An Improved Microprobe Using Direct Undulator Radiation

M. R. Weiss, V. Wüstenhagen, C. Heske, R. Fink, E. Umbach

(With 7 Figures)III - 15

Cathode Lens Spectromicroscopy

with a Low-Energy Electron Microscope

G. Lilienkamp, C. Koziol, T. Schmidt, E. Bauer (With 7 Figures)III - 25

Spectromicroscopy with Soft X-Rays at Hasylab J. Voss, K. Berens von Rautenfeld, M. Fornefett, J. Friedrich, M. Pretorius, M. Schroeder, H. Sievers, A. Ranck, M. Wachsmuth, V. Wedemeier (With 6 Figures)	III - 35
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

X-Ray Magnetic Microspectroscopy Using the Circularly Polarized Undulator Radiation at the TRISTAN Accumulation Ring Y. Kagoshima, J. Wang, T. Miyahara, M. Ando, S. Aoki (With 8 Figures)	III - 45
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Concept and Design of the SMART Spectromicroscope at BESSY II W. Engel, R. Degenhardt, A. M. Bradshaw, W. Erlebach, K. Ihmann, H. Kuhlenbeck, R. Wichtendahl, H.-J. Freund, R. Schlögl, D. Preikszas, H. Rose, R. Spehr, P. Hartel, G. Lilienkamp, Th. Schmidt, E. Bauer, G. Benner, R. Fink, M. R. Weiss, E. Umbach (With 4 Figures)	III - 55
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

Microchemical Analysis of Boron in Rat Brain Tumor: A Spectromicroscopy Study with MEPHISTO G. De Stasio (With 7 Figures)	III - 67
---------------------------------------------------------------------------------------------------------------------------------------	----------

* Characterization of the X1-STXM Spectroscopy Acquisition Mode Utilizing Carbon Dioxide A. P. Smith, T. Coffey, H. Ade (With 6 Figures)	III - 77
------------------------------------------------------------------------------------------------------------------------------------------------------	----------

* Possible Suppression of Higher-Order Spectral Contamination with a Longitudinal Single Wire Proportional Counter and Helium/Oxygen Gas Filter D. A. Winesett and H. Ade (With 6 Figures).....	III - 83
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

* X-Ray Absorption Near-Edge Structure of Amino Acids and Peptides J. Boese, A. Osanna, C. Jacobsen, J. Kirz, E. Tall, X. Zhang (With 1 Figure)....	III - 89
-----------------------------------------------------------------------------------------------------------------------------------------------------------	----------

* Image Contrast in Embedded Specimens Using NEXAFS Spectroscopy N. I. Khaleque and C. J. Buckley (With 2 Figures)	III - 95
--------------------------------------------------------------------------------------------------------------------------------	----------

* ESCA Microscopy: The First Spectromicroscopy Beamline Operating at ELETTRA M. Marsi, L. Casalis, L. Gregoratti, S. Günther, A. Kolmakov, J. Kovac, D. Lonza, M. Kiskinova (With 2 Figures)	III - 99
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------

* Development of a Hard X-Ray Microprobe at CAMD N. Mölders, P. Schilling, A. Moewes, M. C. Petri, L. Leibowitz, H. O. Moser (With 6 Figures).....	III - 105
* Soft X-Ray Photoemission Spectromicroscopy Project at the Synchrotron Radiation Research Center in Taiwan C.-H. Ko, R. Klauser, T. J. Chuang, H.-H. Chan, D.-H. Wie (With 2 Figures).....	II - 111
* Hard X-Ray Microprobe with Sputtered-Sliced Fresnel Zone Plate at the TRISTAN Main Ring in KEK Y. Suzuki, N. Kamijo, S. Tamura, K. Handa, A. Takeuchi, S. Yamamoto, H. Sugiyama (With 2 Figures).....	III - 117
* The Design and Performance of the Scanning Photoelectron Microscope at MAX-Lab and Its Applications to Overlayers on Silicon U. Johansson and R. Nyholm (With 4 Figures).....	III - 121
* High-Resolution VUV Scanning Microscopy at HASYLAB M. Pretorius, J. Friedrich, A. Ranck, M. Schroeder, V. Wedemeier, J. Voss (With 3 Figures)	III - 127
* Charging Effects in Soft X-Ray Microscopy A. Ranck, K. Berens v. Rautenfeld, M. Fornefett, J. Friedrich, M. Pretorius, M. Schroeder, V. Wedemeier, J. Voss (With 4 Figures)	III - 133
* Imaging and Microspectroscopy of Desorbed Ions at the Soft X-Ray Microscope at HASYLAB M. Schroeder, M. Fornefett, J. Friedrich, M. Pretorius, K. Berens v. Rautenfeld, A. Ranck, V. Wedemeier, J. Voss (With 6 Figures).....	III - 139
* Soft X-Ray Bragg and Photoemission Microscopy V. Wedemeier, K. Berens v. Rautenfeld, M. Fornefett, J. Friedrich, M. Pretorius, A. Ranck, M. Schroeder, J. Voss (With 5 Figures)	III - 145
* X-Ray Microscopy for Multilayer Characterization J. Friedrich, K. Berens v. Rautenfeld, M. Fornefett, M. Pretorius, A. Ranck, M. Schroeder, H. Sievers, J. Voss, V. Wedemeier, E. Louis, H.-J. Voorma, N. B. Koster, F. Bijkerk (With 6 Figures).....	III - 151

* Measurement of XANES Spectra of Biological Molecules in the Soft X-Ray Region K. Shinohara, A. Ito, K. Kobayashi (With 8 Figures)	III - 157
* Time-of-Flight Photoelectron Spectroscopy with a Laser-Plasma X-Ray Source H. Kondo, T. Tomie, H. Shimizu (With 4 Figures)	III - 163
* Development of X-Ray Photoelectron Microprobe with a Laser-Produced Plasma Source S. Aoki, T. Ohchi, T. Onuki, K. Sugisaki (With 5 Figures)	III - 169
* A Table-Top X-Ray Microprobe Applying a Line-Focusing Multilayer-Mirror and Image Reconstruction N. Gurker and C. Nentwich (With 6 Figures)	III - 175

Part IV X-Ray Optics

Zone Plates in Nickel and Germanium for High-Resolution X-Ray Microscopy T. Schliebe and G. Schneider (With 10 Figures)	IV - 3
Zone Plates for a Scanning Transmission X-Ray Microscope S. J. Spector, C. J. Jacobsen, D. M. Tennant (With 6 Figures)	IV - 13
Fabrication of the X-Ray Condenser Zone Plate KZP 7 M. Hettwer and D. Rudolph (With 9 Figures)	IV - 21
Bragg-Fresnel Optics V. V. Aristov (With 6 Figures)	IV - 27
Bragg-Fresnel Optics for High-Energy X-Ray Microscopy Techniques at the ESRF I. Snigireva, A. Souvorov, A. Snigirev (With 9 Figures)	IV - 35
High Numerical-Aperture X-Ray Condensers for Transmission X-Ray Microscopes B. Niemann (With 9 Figures)	IV - 45

* Zone Plate Fabrication at King's College, London P. Charalambous and R. E. Burge (With 5 Figures).....	IV - 57
* Fabrication of Hard X-Ray Sputtered-Sliced Fresnel Phase Zone Plate N. Kamijo, S. Tamura, Y. Suzuki, K. Handa, A. Takeuchi, S. Yamamoto, M. Ando, K. Ohsumi, H. Kihara (With 3 Figures)	IV - 65
*Zone Plates as Imaging Optics in High Diffraction Orders Described by Coupled Wave Theory G. Schneider and J. Maser (With 4 Figures)	IV - 71
* Design of a Condenser for an X-Ray Microscope on a Low- β Section Undulator Source at the ESRF S. Oestreich and B. Niemann (With 4 Figures).....	IV - 77
* A New Method for the Manufacture of Large-Area Condenser Zone Plates with Small Outermost Zone Widths C. David, D. R. Kayser, H. U. Müller, B. Völkel, M. Grunze (With 8 Figures).....	IV - 83
* A Monochromator for a Scanning Transmission X-Ray Microscope at the U41 Undulator Beamline at BESSY II A. Irtel von Brenndorff, B. Niemann, D. Rudolph, G. Schmahl (With 2 Figures).....	IV - 89
* Condenser Optics for Dark Field X-Ray Microscopy S. J. Pfauntsch, A. G. Michette, C. J. Buckley (With 2 Figures)	IV - 93
* Large Aperture Bragg-Fresnel Lenses V. Aristov, A. Firsov, A. Svintsov, A. Firsova, P. Chevallier, P. Dhez (With 3 Figures).....	IV - 99
* Multilayer Bragg-Fresnel Zone Plate Applied to Laser-Produced Plasma Imaging at 1.43 keV G. Cauchon, M. Idir, A. Mirone, P. Dhez, T. Jalineaud, P. Troussel, J. Y. Boutin, J. P. Lebreton (With 5 Figures)	IV - 105
* New Optics for the Hard X-Ray Microprobe at CAMD A. Moewes, N. Mölders, P. Schilling (With 3 Figures)	IV - 111

* Replicated X-Ray Optics R. Hudec, L. Pina, A. Inneman	IV - 117
* A Bent Multilayer-Mirror as a Focusing Element for a Tunable Table-Top Microtomography Beamline N. Gurker and R. Nell (With 6 Figures)	IV - 123

* Use of Glass Capillaries for Microspot XRF Analysis V. A. Arkadiev, H.-E. Gorny, W. Scholz, R. Wedell (With 2 Figures)	IV - 129
-----------------------------------------------------------------------------------------------------------------------------------	----------

Part V X-Ray Sources

Debris-Free Liquid-Target Laser-Plasma X-Ray Sources for Microscopy and Lithography

H. M. Hertz, L. Rymell, M. Berglund, L. Malmqvist (With 7 Figures)V - 3

X-Ray Spectromicroscopy of 120-fs Laser-Produced Plasma

A. Ya. Faenov, T. A. Pikuz, A. A. Firsov, L. A. Panchenko, Yu. I. Koval,
M. Fraenkel, A. Zigler (With 6 Figures).....V - 15

Investigations on Laser-Generated Plasma Sources

T. Wilhein (With 8 Figures).....V - 25

* Characterisation of Debris-Free Laser-Plasma Source for Transmission X-Ray Microscopy

L. Rymell, M. Berglund, H. M. Hertz (With 1 Figure)V - 37

* Improved Water-Window Droplet-Target Laser-Plasma X-Ray Source by Temporally Tailored Laser Pulse

M. Berglund, L. Rymell, H. M. Hertz (With 1 Figure)V - 39

* Quantitative Evaluation of Debris

Emitted from a Laser-Produced Plasma

N. Kandaka and H. Kondo (With 3 Figures)V - 41

* Formation of Cavity and Amplification of X-Rays in a Table-Top X-Ray Laser Pumped by a YAG Laser

N. Yamaguchi, C. Fujikawa, Y. Hisada, A. Ogata, K. Okasaka,
T. Ohchi, T. Hara (With 2 Figures)V - 47