

Contents

1	Coherent Pulses from a Seeded Free-Electron Laser in the Extreme Ultraviolet	1
	E. Allaria, D. Castronovo, G. De Ninno, S. Di Mitri, W. Fawley, E. Ferrari, L. Froehlich, L. Giannessi, B. Mahieu, G. Penco, C. Spezzani, and M. Trovo	
2	Enhancement of Efficiency of XUV Generation in Atomic Gases Irradiated by Intense Laser Fields	7
	A.V. Andreev, S.Y. Stremoukhov, and O.A. Shoutova	
3	All-Optical Raman XFEL, Based on the Electron Emission in a Transverse High Intensity Optical Lattice	13
	I.A. Andriyash, E. d’Humières, V.T. Tikhonchuk, and P. Balcou	
4	Optical Transforms Related to Coherent Imaging of Inclined Objects	19
	I.A. Artyukov, A.S. Busarov, N.L. Popov, and A.V. Vinogradov	
5	Soft-X-Ray Lasing down to 6.85 nm in Ni-Like Samarium	29
	J.E. Balmer, F. Staub, and F. Jia	
6	Fourier Optics Study of Traveling-Wave Excitation at Short-Wavelength Plasma-Lasing	35
	Davide Bleiner and Thomas Feurer	
7	Coherent Short-Wavelength Plasma Radiation for Lab-scale Nano-inspection Tools	39
	Davide Bleiner	
8	Ion Temperature and Cross-relaxation Effects on OFI Soft-X-Ray Laser	45
	A. Boudaa, G. Maynard, and B. Cros	

9	Study of Particle Correlation Effects on Line Profiles of Ni-Like Collisional XUV Laser Amplifier	49
	A. Calisti, S. Ferri, C. Mossé, B. Talin, A. Klisnick, L. Meng, D. Benredjem, and O. Guilbaud	
10	The LUNEX5 Project in France	55
	M.E. Couprie, C. Benabderrahmane, P. Betinelli, F. Bouvet, A. Buteau, L. Cassinari, J. Daillant, J.C. Denard, P. Eymard, B. Gagey, C. Herbeaux, M. Labat, A. Lestrade, A. Loulergue, P. Marchand, J.L. Marlats, C. Miron, P. Morin, A. Nadji, F. Polack, J.B. Pruvost, F. Ribeiro, J.P. Ricaud, P. Roy, T. Tanikawa, R. Roux, S. Bielawski, C. Evain, C. Szwaj, G. Lambert, A. Lifschitz, V. Malka, R. Lehe, A. Rousse, K. Ta Phuoc, C. Thauray, G. Devanz, M. Luong, B. Carré, G. LeBec, L. Farvacque, A. Dubois, and J. Lüning	
11	High Harmonic Generation Driven by Two Quasi-collinear Pulses	63
	S. Daboussi, S. Kazamias, K. Cassou, O. Guilbaud, M. Pittman, O. Delmas, O. Neveu, B. Cros, G. Maynard, and D. Ros	
12	Real-Time Observation of Laser Heated Metals with High Brightness Monochromatic X-Ray Techniques at Present and Their Future Prospects	69
	H. Daido, T. Shobu, T. Yamada, S. Yamashita, K. Sugihara, A. Nishimura, and T. Muramatsu	
13	Generation and Application of Coherent Radiation in the Water Window	77
	L.V. Dao, C. Hall, H.L. Vu, K.B. Dinh, N. Gaffney, E. Balaour, P. Hannaford, and T.A. Smith	
14	Time-Dependent Simulation of Carbon Illuminated by a High Intensity X-Ray Laser	83
	Alberto G. de la Varga, Pedro Velarde, François de Gaufridy, Manuel Cotel, David Portillo, and Philippe Zeitoun	
15	Regenerative Laser Cavity Tuning for Efficient Soft-X-Ray Laser Operation	89
	O. Delmas, K. Cassou, O. Guilbaud, S. Kazamias, S. Daboussi, M. Pittman, O. Neveu, J. Demailly, and D. Ros	
16	X-Ray Laser Developments at PHELIX	97
	B. Ecker, B. Aurand, D.C. Hochhaus, P. Neumayer, B. Zielbauer, K. Cassou, S. Daboussi, O. Guilbaud, S. Kazamias, T.T.T. Le, E. Oliva, L. Li, H. Zhao, Q. Jin, D. Ros, P. Zeitoun, and T. Kuehl	
17	Parabolic Equation and Exact Transparent Boundary Conditions in X-Ray Optics—Application to Waveguides and Whispering Gallery Optics	105
	R.M. Feshchenko and A.V. Popov	

18	Harmonic Generation and Soft-X-Ray Laser with LASERIX: Source Development, Applications and Advanced Diagnosis	109
	Olivier Guilbaud, Sophie Kazamias, Kevin Cassou, Moana Pittman, Sameh Daboussi, Olivier Delmas, Julien Demailly, Olivier Neveu, Chris Pouhe, Boris Vodungbo, Philippe Zeitoun, Lucy Wilson, Greg Tallents, Antonin Dusseix, Gabriel Richet, Aurelie Gense, Bich-Lien Nghiem, Brigitte Cros, Gilles Maynard, and David Ros	
19	Observation of the Laser-Induced Surface Dynamics Using the Single-Shot Soft X-Ray Laser Probe	117
	N. Hasegawa, Y. Ochi, T. Kawachi, M. Nishikino, M. Ishino, T. Imazono, T. Kaihori, T. Morita, A. Sasaki, K. Terakawa, Y. Minami, M. Baba, T. Tomita, M. Yamamoto, M. Yamagiwa, and T. Suemoto	
20	Nano-meter Size Modification of Metal Surfaces Induced by Soft X-Ray Laser Single Pulse	121
	Masahiko Ishino, Anatoly Faenov, Momoko Tanaka, Tatiana Pikuz, Satoshi Tamotsu, Noboru Hasegawa, Masaharu Nishikino, Sergei Starikov, Vladimir Stegailov, Genry Norman, Vladimir Fortov, Igor Skobelev, Takeshi Kaihori, and Tetsuya Kawachi	
21	Speckle Statistics, Coherence and Polarization of a Collisional Soft X-Ray Laser	125
	K.A. Janulewicz, C.M. Kim, P.V. Nickles, H. Stiel, M. Nishikino, N. Hasegawa, and T. Kawachi	
22	Upscaling of X-Ray Laser Repetition Rate Using an OPCPA Architecture	137
	Fei Jia, Felix Staub, and Jürg Balmer	
23	Source Development of Novel Coherent X-Rays and Their Applications in JAEA	143
	T. Kawachi, A. Sasaki, M. Nishikino, M. Ishino, N. Hasegawa, T. Imazono, Y. Ochi, M. Tanaka, A.Y. Faenov, T.A. Pikuz, A. Pirozhkov, T. Esirkepov, T. Nakamura, M. Kando, S.V. Bulanov, K. Kondo, K. Janulewicz, C.M. Kim, H. Stiel, G. Norman, T. Suemoto, T. Tomita, K. Namikawa, M. Yamagiwa, and Y. Kato	
24	Characterization of Zn X-Ray Laser at PALS Centre, Its Applications in Dense Plasma Probing and Astrophysics	151
	M. Kozlova, J. Nejd, M. Krus, J. Prokupek, J. Dostal, B. Rus, A. Klisnick, L. Meng, F. Tissandier, C. Stehlé, R. Lefevre, U. Chaulagain, N. Champion, P. Barroso, F. Reix, P. Jagourel, J. Larour, F. Delmotte, C. Constancias, F. Suzuki-Vidal, and O. Acef	
25	Development of High Reflective Multilayer Mirrors at “Water Window” Wavelengths in IPOE	161
	Haochuan Li, Jingtao Zhu, and Zhanshan Wang	

26	Time Resolved Holography Scheme Using a Table Top Soft X-Ray Laser	165
	E.B. Malm, N.C. Monserud, P.W. Wachulak, C. Brown, W. Chao, E. Anderson, H. Xu, C.P. Hains, G. Balakrishnan, C.S. Menoni, J.J. Rocca, and M.C. Marconi	
27	Plasma Homogenization for Overcoming Refractive Losses in X-Ray Lasers	171
	Leili Masoudnia and Davide Bleiner	
28	Temporal Coherence and Spectral Linewidth of Neon-Like XUV Lasers Pumped in the Quasi-steady State Regime	175
	L. Meng, A. Klisnick, M. Kozlova, K. Bohacek, M. Krus, J. Prokupek, L. Urbanski, M.C. Marconi, M. Berrill, J.J. Rocca, O. Guilbaud, F. Tissandier, S. Sebban, P. Zeitoun, A. Calisti, S. Ferri, C. Mossé, and B. Talin	
29	Spectral Broadening of Ni-Like XUV Laser Lines	181
	L. Meng, A. Calisti, S. Ferri, C. Mossé, B. Talin, D. Benredjem, O. Guilbaud, and A. Klisnick	
30	Visualization of Rapid Dynamic Interactions by Flash Soft X-Ray Microscopy	185
	C.S. Menoni, S. Carbajo, I.D. Howlett, W. Chao, E.H. Anderson, A.V. Vinogradov, I.A. Artioukov, K. Buchanan, M.C. Marconi, and J.J. Rocca	
31	Using the X-FEL to Understand X-Ray Thomson Scattering for Partially Ionized Plasmas	193
	Joseph Nilsen, Walter R. Johnson, and K.T. Cheng	
32	Development of Soft X-Ray Microscopy Using Fresnel Zone Plate for Observation of Laser-Induce Surface Dynamics	199
	M. Nishikino, M. Baba, T. Suemoto, N. Hasegawa, M. Ishino, T. Kaihori, T. Kawachi, and M. Yamagiwa	
33	0.27 GW Soft X-Ray Pulse Using a Plasma-Based Amplification Chain	203
	E. Oliva, M. Fajardo, P. Velarde, D. Ros, S. Sebban, and P. Zeitoun	
34	Harmonic Generation in Argon by Femtosecond Ti:Sapphire Laser .	209
	Rabia Qindeel, Ricardo Elgul Samad, Anderson Zanardi de Freitas, Paulo Sergio Fabris de Matos, Edilson Lucena Falcão, and Nilson Dias Vieira Junior	
35	Demonstration of a 100 Hz Repetition Rate Soft X-Ray Laser and Gain-Saturated Sub-10 nm Table-Top Lasers	215
	J.J. Rocca, B.A. Reagan, Y. Wang, D. Alessi, K. Wernsing, B.M. Luther, M.A. Curtis, M. Berrill, D. Martz, S. Wang, L. Yin, F. Furch, M. Woolston, D. Patel, V.N. Shlyaptsev, and C.S. Menoni	

36	Optical Correction of X-Ray Laser Illumination for Short-Wavelength Microscopy	227
	Mabel Ruiz-Lopez, Felix Staub, and Davide Bleiner	
37	Repetitive XUV Discharge-Pumped Laser at 46.9 nm	231
	Jiri Schmidt, Karel Kolacek, Oleksandr Frolov, Vaclav Prukner, and Jaroslav Straus	
38	Line-Focus Generation for X-Ray Laser Pumping	235
	F. Staub, D. Bleiner, F. Jia, and J.E. Balmer	
39	Critical Components for XUV Probing of Laser Driven Shocks . . .	239
	C. Stehlé, R. Lefèvre, U. Chaulagain, N. Champion, P. Barroso, F. Reix, P. Jagourel, J. Larour, E. Meltchakov, R. Mercier, F. Delmotte, M. Kozlova, J. Nejd, M. Krus, J. Dostal, J. Prokupek, C. Constancias, F. Suzuki-Vidal, and O. Acef	
40	High Density Optical-Field-Ionization Soft X-Ray Lasers	243
	F. Tissandier, S. Sebban, M. Kozlova, J. Gautier, P. Zeitoun, A. Klisnick, and G. Maynard	
41	Spectral Linewidth Measurement of a Ne-Like Ar Capillary Discharge Soft X-Ray Laser	257
	L. Urbanski, M.C. Marconi, L.M. Meng, M. Berrill, O. Guilbaud, A. Klisnick, and J.J. Rocca	
42	Defect Tolerant Talbot Nanopatterning	263
	L. Urbanski, M.C. Marconi, A. Isoyan, A. Stein, C.S. Menoni, and J.J. Rocca	
43	Imaging in Nanoscale Using Laser-Plasma Sources of Extreme Ultraviolet (EUV)	269
	P.W. Wachulak, A. Bartnik, A. Baranowska-Korczyk, D. Pánek, P. Brůža, J. Kostecki, Ł. Węgrzyński, R. Jarocki, M. Szczurek, K. Fronc, D. Elbaum, and H. Fiedorowicz	
44	Experiments to Diagnose Plasma with a Soft X-Ray Laser Double-Frequency Grating Interferometry	277
	C. Wang, H.H. An, Z.H. Fang, J.R. Sun, W. Wang, W.D. Zheng, X.M. Qiao, and S.J. Wang	
45	Heavy-Ion Spectroscopy with X-Ray Lasers at GSI	283
	B. Zielbauer, B. Ecker, P. Neumayer, K. Cassou, S. Daboussi, O. Guilbaud, S. Kazamias, D. Ros, T. Kuehl, U. Eisenbarth, S. Goette, D. Winters, V. Bagnoud, and T. Stoehlker	
	Index	287

X-Ray Lasers 2012

Proceedings of the 13th International Conference on

X-Ray Lasers, 11–15 June 2012, Paris, France

Sebban, S.; Gautier, J.; Ros, D.; Zeitoun, P. (Eds.)

2014, XXX, 290 p. 166 illus., 117 illus. in color.,

Hardcover

ISBN: 978-3-319-00695-6