

Fournier

ATOMIC PROCESSES IN PLASMAS

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Proceedings of the 16th International
Conference on Atomic Processes in Plasmas

Monterey, California 22 - 26 March 2009

EDITOR
Kevin B. Fournier



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Kevin B. Fournier

*Lawrence Livermore National Laboratory
Livermore, California*

All papers have been peer reviewed

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CONTENTS

Preface	ix
Committees and Sponsors	xi
Meetings in This Series	xiii

HIGH ENERGY DENSITY (HED) PLASMAS

Effect of NLTE Emissivity Models on NIF Ignition Hohlraum Power Requirements	3
L. Suter, S. Hansen, M. Rosen, P. Springer, and S. Haan	
NLTE Opacities of Mid- and High-Z Cocktails	10
M. E. Sherrill, J. Abdallah, Jr., C. J. Fontes, H. L. Zhang, and D. P. Kilcrease	
X-Ray Spectroscopy of Solid-Density Plasmas in High-Intensity Laser Interactions	17
P. M. Nilson, W. Theobald, J. F. Myatt, C. Stoeckl, J. D. Zuegel, R. Betti, D. D. Meyerhofer, and T. C. Sangster	
Non-Equilibrium Electron and Ion Temperature Measurements in Omega Direct-Drive Implosions (<i>Abstract</i>)	24
J. A. Koch, A. Miles, W. Hsing, R. W. Lee, H. Scott, R. Stewart, R. Tommasini, J. Frenje, C. Li, R. Petrasso, and V. Glebov	
Progress in Fast Ignition Studies with Electrons and Protons (<i>Abstract</i>)	25
A. J. MacKinnon, K. U. Akli, T. Bartal, F. N. Beg, S. Chawla, C. D. Chen, H. Chen, S. Chen, E. Chowdhury, R. Fedosejevs, R. R. Freeman, D. Hey, D. Higginson, M. H. Key, J. A. King, A. Link, T. Ma, A. G. MacPhee, D. Offermann, V. Ovchinnikov, J. Pasley, P. K. Patel, Y. Ping, D. W. Schumacher, R. B. Stephens, Y. Y. Tsui, M. S. Wei, and L. D. Van Woerkom	
Shock Experiments on Pre-Compressed Fluid Helium	26
J. H. Eggert, P. M. Celliers, D. G. Hicks, J. R. Rygg, G. W. Collins, S. Brygoo, P. Loubeyre, R. S. McWilliams, D. Spaulding, R. Jeanloz, and T. R. Boehly	
Quantum Molecular Dynamics Simulations for Generating Equation of State Data	32
M. P. Desjarlais	
Radiating Shock Properties in the Z-Pinch Dynamic Hohlraum (<i>Abstract</i>)	39
G. A. Rochau, J. E. Bailey, Y. Maron, G. Chandler, V. Fisher, R. Lemke, J. MacFarlane, K. Peterson, S. Slutz, and E. Stambulchik	
Experimental Investigation of Iron Plasma Opacity Models (<i>Abstract</i>)	40
J. E. Bailey, G. A. Rochau, S. B. Hansen, T. J. Nash, D. S. Nielsen, P. W. Lake, C. A. Iglesias, R. C. Mancini, J. J. MacFarlane, I. Golovkin, P. Wang, C. Blancard, Ph. Cosse, G. Faussurier, F. Gilleron, J. C. Pain, J. Abdallah, Jr., A. K. Pradhan, and S. N. Nahar	

MAGNETIC FUSION ENERGY (MFE) PLASMAS

Atomic Data for Core and Edge Modeling	43
M. G. O'Mullane, A. R. Foster, A. D. Whiteford, H. P. Summers, S. D. Loch, and L. Lauro-Taroni	

Analyzing the Radiation Properties of High-Z Impurities in High-Temperature Plasmas	52
M. L. Reinke, A. Ince-Cushman, Y. Podpaly, J. E. Rice, M. Bitter, K. W. Hill, K. B. Fournier, and M. F. Gu	
Low-Z Shell Pellet Experiments on DIII-D	65
E. M. Hollmann, A. N. James, P. B. Parks, T. E. Evans, D. A. Humphreys, G. L. Jackson, T. C. Jernigan, R. J. La Haye, E. J. Strait, W. P. West, W. Wu, and J. H. Yu	
Burning Plasma—Wall Interactions	75
P. S. Krstić and C. O. Reinhold	

ELECTRON BEAM ION TRAP (EBIT) PLASMAS

‘Programming’ Electron Beam Ion Traps to Produce Atomic Data Relevant to Plasma Physics	87
F. Currell, B. O’Rourke, A. Kavanagh, Y. Li, N. Nakamura, S. Ohtani, and H. Watanabe	
X-Ray and EUV Spectroscopy of Highly Charged Tungsten Ions (<i>Abstract</i>) . . .	95
C. Biedermann and R. Radtke	
Collision Processes of Highly Charged Ions with Electrons Studied with an Electron Beam Ion Trap (<i>Abstract</i>)	96
N. Nakamura, A. P. Kavanagh, H. Watanabe, H. A. Sakaue, Y. Li, D. Kato, F. J. Currell, X.-M. Tong, T. Watanabe, and S. Ohtani	

NEXT GENERATION LIGHT SOURCES

Future Opportunities in Plasma Physics with FELs (<i>Abstract</i>)	99
R. Falcone	
X-Ray Free-Electron Laser Interaction with Matter	100
S. Hau-Riege	
Ionization and Expansion Dynamics of Atomic Clusters Irradiated with Short Intense VUV Pulses	105
B. Ziaja, F. Wang, H. Wabnitz, E. Weckert, and T. Möller	
X-Ray Free Electron Lasers	113
C. Pellegrini	

ASTROPHYSICAL PLASMAS

The Dual Role of Atomic and Molecular Astrophysics: Discovery and Data . . .	123
K. P. Kirby	
X-Ray Spectroscopy of the Radiation-Driven Winds of Massive Stars: Line Profile and Line Ratio Diagnostics	132
D. H. Cohen	
The Thermal Structure of the Solar Upper Atmosphere	142
E. Landi and U. Feldman	

Ionization Balance and Data Surveys	152
S. D. Loch, C. P. Ballance, J. M. Munoz Burgos, M. Fogle, J. A. Ludlow, M. S. Pindzola, D. C. Griffin, and M. G. O'Mullane	

MODELLING AND PLASMA DIAGNOSTICS

Advances in Supercomputing for the Modeling of Atomic Processes in Plasmas	165
J. A. Ludlow, C. P. Ballance, S. D. Loch, T. G. Lee, M. S. Pindzola, D. C. Griffin, B. M. McLaughlin, and J. Colgan	
Magnetic Field Measurements in Plasmas: Beyond the Traditional Zeeman Spectroscopy	175
R. Doron, E. Stambulchik, S. Tessarin, E. Kroupp, J. Citrin, K. Tsigutkin, and Y. Maron	
Polarization Spectroscopy Modeling with the Inclusion of Radiation Transport	179
P. Hakel, R. C. Mancini, and Y. Sentoku	
K-Edge Absorption Spectra in Warm Dense Matter	200
O. Peyrusse, S. Mazevet, V. Recoules, F. Dorchies, M. Harmand, A. Levy, J. Fuchs, A. Mancic, M. Nakatsutsumi, P. Renaudin, and P. Audebert	
X-Ray Spectroscopy of K- and L-Shell Z-Pinch and Astrophysical Plasmas	207
A. Dasgupta, R. W. Clark, J. Davis, and J. G. Giuliani	
Studying Radiation from Z-Pinch Wire Array Plasmas: K-Shell Mg to M-Shell Mo	217
A. S. Safronova, V. L. Kantsyrev, U. I. Safronova, A. A. Esaulov, M. F. Yilmaz, N. D. Ouart, I. Shrestha, K. W. Williamson, G. C. Osborne, P. G. Wilcox, M. E. Weller, V. Shlyapsteva, C. A. Coverdale, B. Jones, D. J. Ampleford, P. D. LePell, and C. Deeney	

FUNDAMENTAL DATA

R-Matrix Calculations along Sequences: Photoionization and Electron-Impact Excitation	231
M. C. Witthoef	
Multi-Code <i>Ab Initio</i> Calculation of Ionization Distributions and Radiation Losses for Tungsten in Tokamak Plasmas	242
Yu. Ralchenko, J. Abdallah, Jr., A. Bar-Shalom, J. Bauche, C. Bauche-Arnoult, C. Bowen, H.-K. Chung, J. Colgan, G. Faussurier, C. J. Fontes, M. Foster, F. de Gaufridy de Dortan, I. Golovkin, S. B. Hansen, R. W. Lee, V. Novikov, J. Oreg, O. Peyrusse, M. Poirierk, A. Sasaki, H. Scott, and H. L. Zhang	

SMALL LASER PLASMAS

Femtosecond X-Ray Diffraction: Applications for Laser-Irradiated Materials (<i>Abstract</i>)	253
J. S. Wark	
Polarized He_{α} Radiation by Anisotropic Fast Electron Transport in Ultra-Intense Laser Produced Plasmas	254
T. Kawamura, T. Kai, F. Koike, S. Nakazaki, H. Nishimura, Y. Inubushi, Y. Okano, H. Nagatomo, D. Batani, A. Morace, R. Redaelli, C. Fourment, J. Santos, G. Malka, A. Boscheron, A. Casner, M. Koenig, S. Fujioka, T. Nakamura, T. Johzaki, and K. Mima	
High Order Harmonics from Mid-Infrared Drivers for Attosecond Physics . .	260
G. Doumy, J. Wheeler, C. Roedig, P. Agostini, and L. F. DiMauro	
High Intensity Femtosecond XUV Pulse Interactions with Atomic Clusters . .	270
K. Hoffmann, B. Murphy, J. Keto, and T. Ditmire	
Hybrid Simulations for the Ion Structure and Dynamics in Dense Plasmas . .	280
G. Gregori, J. Vorberger, and D. O. Gericke	
K-α X-Ray Thomson Scattering from Dense Plasmas	286
A. L. Kritcher, P. Neumayer, J. Castor, T. Döppner, R. W. Falcone, O. L. Landen, H. J. Lee, R. W. Lee, E. C. Morse, A. Ng, S. Pollaine, D. Price, and S. H. Glenzer	
List of Participants	293
Author Index	301

Preface

The 16th International Conference on Atomic Processes in Plasmas (APiP) was held March 22-26, 2009, in Monterey, California at the lovely The Embassy Suites Monterey Bay – Seaside hotel. This conference series covers a broad range of topics and provides a forum for interactions between scientists from universities, national laboratories and industry, from the United States and abroad. This year's conference began with a plenary lecture on the role of atomic processes in determining the laser-power requirements for the ignition point design for the National Ignition Facility (NIF). The conference also featured sessions on High-Energy-Density (HED) Physics, Magnetic Fusion Energy (MFE) plasmas and Next-Generation Light Sources such as free-electron x-ray lasers. In all these areas, impressive new facilities are under construction and/or currently coming on line, and it is a very active and exciting time for on-going and future research efforts.

There were 121 registered participants, which, after nine cancellations, mostly due to visa issues, resulted in the 112 participants listed at the end of this volume. There were 39 invited papers presented at the meeting and approximately 56 contributed posters. Attendees came from across the U.S. (73%) and six other countries (27%); 28% of the invited papers were from authors from outside the U.S. The percentages of attendees from government-sponsored laboratories (U.S. and otherwise), universities and industry were 48, 48 and 4%, respectively. The institutions with the largest number of participants were LLNL (26), LANL (6), SNL (4) and NIST (4).

In a competition judged by the members of the Executive Committee, three of the posters created and presented by students were awarded prizes. First place went to two undergraduates, Erin Martell and Emma Wollman of Swarthmore College, second place to Ishor Shrestha of the University of Nevada, Reno and third place to Yuri Podpaly of the Massachusetts Institute of Technology. All the posters were of exceptional quality.

This volume contains contributions from nearly all the invited speakers. Most of these contributions are peer-reviewed papers (each read by two reviewers), and the rest are abstracts, sometimes expanded to include citations of relevant articles in the literature. Versions of the papers with figures in full color are provided on a CD that is included with this volume, as well as online.

Financial support for this conference was provided by the U.S. Department of Energy (Office of Fusion Energy Sciences), Lawrence Livermore National Laboratory (both the NIF & Photon Science Directorate and the Physical and Life Sciences Directorate), the Institute for Material Dynamics at Extreme Conditions (part of the University of California) and the Los Alamos National Laboratory.

The Executive Committee selected Queen's University in Belfast, Northern Ireland, U.K. as the location of the next conference in this series under the Chairmanship of Prof. Fred Currell. This will be the first time that the APiP conference is held outside of the U.S.

Kevin B. Fournier, Chair
June 2009
Livermore, California.

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Meetings in This Series

1. Knoxville, Tennessee	February 16-18, 1977	<i>not published</i>
2. Boulder, Colorado	January 17-19, 1979	<i>not published</i>
3. Baton Rouge, Louisiana	February 25-27, 1981	<i>not published</i>
4. Princeton, New Jersey	April 13-15, 1983	<i>not published</i>
5. Pacific Grove, California	February 25-28, 1985	<i>not published</i>
6. Santa Fe, New Mexico	September 28-October 2, 1987	AIP vol. 168
7. Gaithersburg, Maryland	October 2-5, 1989	AIP vol. 206
8. Portland, Maine	August 25-29, 1991	AIP vol. 257
9. San Antonio, Texas	September 19-23, 1993	AIP vol. 322
10. San Francisco, California	January 14-18, 1996	AIP vol. 381
11. Auburn, Alabama	March 23-26, 1998	AIP vol. 443
12. Reno, Nevada	March 19-23, 2000	AIP vol. 547
13. Gatlinburg, Tennessee	April 22-25, 2002	AIP vol. 635
14. Santa Fe, New Mexico	April 19-22, 2004	AIP vol. 730
15. Gaithersburg, Maryland	March 19-22, 2007	AIP vol. 926
16. Monterey, California	March 22-26, 2009	AIP vol. 1161