

## Publications - 2012

### Publications:

1. **S. D. Altemara, D. Papp, V. V. Ivanov, A. A. Anderson, A. A. Astanovitskiy, and V. Nalajala**, “*High-Resolution UV Laser Diagnostics on the I-MA Zebra Generator*”, IEEE Trans. Plasma Sci., Dec 2012
2. **A.M. Covington**, “*Investigations of High Energy Density Plasmas at the Nevada Terawatt Facility*”, Invited Article, Center of Excellence Highlights, Stewardship Academic Alliance Annual, U.S. DOE National Nuclear Security Administration, DOE/NA-0018 (Feb 2012).
3. S. N. Chen, E. d’Humie`res, E. Lefebvre, L. Romagnani, T. Toncian, P. Antici, P. Audebert, E. Brambrink, C. A. Cecchetti, T. Kudyakov, A. Pipahl, **Y. Sentoku**, M. Borghesi, O. Willi, and J. Fuchs, “*Focusing dynamics of high-energy density, laser-driven ion beams*”, Phys. Rev. Lett. 108, 055001 (2012).
4. J. Giuliani, F. N. Beg, R. M. Gilgenbach, V. L. Kantsyrev, B. Kusse, **V. V. Ivanov, R. Presura**, “*Pinch Research on University Pulsed Power Generators in the United States*”, IEEE Trans. Plasma Sci. PP, 99, 1-19 (2012).
5. G. Hinojosa, **A.M. Covington**, G. Alna-Washi, M. Lu, R. A. Phaneuf, M.M. Sant’Anna, C. Cisneros, I. Alvarez, A. Aguilar, A.L.D. Kilcoyne, A.S. Schlachter, C.P. Ballance and B. M. McLaughlin, “*Valence-shell single photoionization of Kr<sup>+</sup> ions: Experiment and Theory*”, Phys. Rev. A., 00 003400 (Nov 2012).
6. **V. V. Ivanov, J. P. Chittenden, R. C. Mancini, D. Papp, N. Niasse, S. D. Altemara, and A. A. Anderson**, “*Investigation of plasma instabilities in the stagnated Z pinch*”, Physical Review E, 86, 046403 (2012).
7. Y. Kitagawa, Y. Mori, O. Komeda, K. Ishii, R. Hanayama, K. Fujita, S. Okihara, T. Sekine, N. Satoh, T. Kurita, M. Takagi, T. Kawashima, H. Kan, N. Nakamura, T. Kondo, M. Fujine, H. Azuma, T. Motohiro, T. Hioki, Y. Nishimura, A. Sunahara, and **Y. Setnoku**, “*Fusion using fast heating of a compactly imploded CD core*”, Phys. Rev. Lett. 108, 155001 (2012).
8. N. L. Kugland, D. D. Ryutov, P.-Y. Chang, R. P. Drake, G. Fiksel, D. H. Froula, G. Gregori, M. Grosskopf, M. Koenig, Y. Kuramitsu, C. Kuranz, M. C. Levy, E. Liang, J. Meinecke, F. Miniati, T. Morita, A. Pelka, C. Plechaty, **R. Presura**, A. Ravasio, B. A. Remington, B. Reville, J. S. Ross, Y. Sakawa, A. Spitkovsky, H. Takabe, H.-S. Park, “*Self-organized electromagnetic field structures in laser-produced counterstreaming plasmas*”, Nature Physics 8, 809-812 (2012).
9. T. Ma, **H. Sawada**, P.K. Patel, C.D. Chen, L. Divol, D.P. Higginson, A.J. Kemp, M.H. Key, D.J. Larson, S. Le Pape, A. Link, A.G. MacPhee, H.S. McLean, Y. Ping, R.B. Stephens, S.C. Wilks, F.N. Beg, “*Fast electron temperature and coupling efficiencies with preplasma for cone-guided Fast Ignition*”, Physical Review Letters, 108, 115004 (2012).
10. A.Nishida, N. Yugami, T. Higashiguchi, T. Otsuka, F. Suzuki, M. Nakata, **Y. Sentoku**, and R. Kodama, “*Experimental observation of frequency up-conversion by flash ionization*”, Applied Phys. Lett. 101, 16118 (2012).

## Publications - 2012

11. **R.R. Pandit, Y. Sentoku**, “*Higher order terms of radiative damping in extreme intense laser-matter interaction*”, Phys Plasmas, vol. 19, p. 073304, July 2012.
12. **D. Papp, V. V. Ivanov, B. Jones, A. Haboub, A. A. Anderson, S. D. Altemara, B. R. Talbot**, “*Study of the precursor and non-precursor implosion regimes in wire array Z-pinches*”, Physics of Plasmas, 19, 092704 (2012).
13. B. S. Paradkar, T. Yabuuchi, **H. Sawada**, D. P. Higginson, A. Link, M. S. Wei, R. B. Stephens, S. I. Krasheninnikov, and F. N. Beg, “*Emission of energetic protons from relativistic intensity laser interaction with a cone-wire target*”, Phys. Rev. E 86, 056405 (2012).
14. **Y. Paudel**, N. Renard-Le Galloudec, E. d’Humieres, Ph. Nicolai, A. Ya. Faenov, V.L. Kantsyrev, A.S. Safronova, I. Shrestha, G.C. Osborne, V.V. Shlyaptseva and **Y. Sentoku**, “*Self-proton/ion radiography of laser-produced proton/ion beam from thin foil targets*”, Physics of Plasmas 19, 123101 (2012).
15. Y. Ping, A. J. Kemp, L. Divol, M. H. Key, P. K. Patel, K. U. Akli, F. N. Beg, S. Chawla, C. D. Chen, R. R. Freeman, D. Hey, D. P. Higginson, L. C. Jarrott, G. E. Kemp, A. Link, H. S. McLean, **H. Sawada**, R. B. Stephens, D. Turnbull, B. Westover, and S. C. Wilks, “*Dynamics of Relativistic Laser-Plasma Interaction on Solid Targets*”, Phys. Rev. Lett. 109, 145006, (2012).
16. H. U. Rahman, F. J. Wessel, P. Ney, **R. Presura**, Rahmat Ellahi, and P. K. Shukla, “*Shock Waves in a Z-pinch and the Formation of High Energy Density Plasma*”, Phys. Plasmas 19, 122701 (2012).
17. **R. Presura**, “*Hanle Effect as Candidate for Measuring Magnetic Fields in Laboratory Plasmas*”, Rev. Sci. Instrum. 83, 10D528 (2012).
18. J. S. Ross, S. H. Glenzer, P. Amendt, R. Berger, L. Divol, N. L. Kugland, O. L. Landen, C. Plechaty, B. Remington, D. Ryutov, W. Rozmus, D. H. Froula, G. Fiksel, C. Sorce, Y. Kuramitsu, T. Morita, Y. Sakawa, H. Takabe, R. P. Drake, M. Grosskopf, C. Kuranz, G. Gregori, J. Meinecke, C. D. Murphy, M. Koenig, A. Pelka, A. Ravasio, T. Vinci, E. Liang, **R. Presura**, A. Spitkovsky, F. Miniati, and H.-S. Park, “*Characterizing counter-streaming interpenetrating plasmas relevant to astrophysical collisionless shocks*”, Phys. Plasmas 19, 056501 (2012).
19. A.S. Safronova, V.L. Kantsyrev, A.Y. Faenov, U.I. Safronova, **P. Wiewior**, N. Renard-Le Galloudec, A.A. Esaulov, M.E. Weller, A. Stafford, P. Wilcox, I. Shrestha, N.D. Quart, V. Shlyaptseva, G.C. Osborne, **O. Chalyy, Y. Paudel**, “*Atomic physics of relativistic high-contrast laser-produced plasmas in experiments on leopard laser facility at UNR*”, High Energy Density Physics 8, 190 (2012).
20. G. S. Sarkisov, **V. V. Ivanov, P. Leblanc, Y. Sentoku**, K. Yates, **P. Wiewior, O. Chalyy**, and **A. Astanovitskiy**, V. Yu. Bychenkov, D. Jobe, and R. B Spielman, “*Propagation of a laser-driven relativistic electron beam inside a solid dielectric*”, Phys. Rev. E 86, 036412 (2012).
21. **H. Sawada**, T. Yabuuchi, S.P. Regan, K. Anderson, M.S. Wei, R. Betti, J. Hund, M.H. Key, A.J. Mackinnon, H.S. McLean, R.R. Paguio, P.K. Patel, K.M. Saito, R.B. Stephens, S.C. Wilks, F.N. Beg, “*Diagnosing laser-driven, shock-heated foam target with Al absorption spectroscopy on OMEGA EP*”, High Energy Density Physics, 8, 180-183 (2012).

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22. **H. Sawada**, D.P. Higginson, A. Link, T. Ma, S. C. Wilks, H.S. McLean, F. Perez, P.K. Patel, and F.N. Beg, “*Characterizing the energy distribution of laser-generated relativistic electrons in cone-wire targets*”, Phys. Plasmas 19, 103108 (2012).
23. T. Yabuuchi, **H. Sawada**, S. P. Regan, K. Anderson, M. S. Wei, R. Betti, J. Hund, M. H. Key, A. J. Mackinnon, H. S. McLean, R. R. Paguio, P. K. Patel, K. M. Saito, R. B. Stephens, S. C. Wilks, and F. N. Beg, “*Temporally resolved characterization of shock-heated foam target with Al absorption spectroscopy for fast electron transport study*”, Phys. Plasmas 19, 092705 (2012).

## Contributed Papers

1. **K. C. Chartkunchand, K. R. Carpenter, V. T. Davis, P. A. Neill, J. S. Thompson and A. M. Covington**, “*Velocity-Map Imaging Spectroscopy of Negative Ion Photodetachment*”, 44th EGAS Conference, Gothenborg Sweden, (July 2012).
2. **K.C. Chartkunchand, K. R. Carpenter, V. T. Davis, P. A. Neill, J. S. Thompson, and A. M. Covington**, “*Velocity-Map Imaging Spectroscopy of the Ge<sup>-</sup>, Sn<sup>-</sup>, and Pb<sup>-</sup> Negative Ions*”, 43rd DAMOP Conference, Orange County CA, (June 2012).
3. **Erik S. McKee, T.W. Darling and A.M. Covington**, “*Development of a Pulsed Neutron Source and Neutron Diagnostics on Zebra*”, 2012 NNSA Stewardship Sciences Academic Alliance (SSAA) Symposium, Washington D.C. (Feb 2012).
4. D. Mariscal, M.S. Wei, F.N. Beg, J.P. Chittenden, **R. Presura, P. Wiewior and A. Covington**, “*Investigations of Magnetic Fields in Wire Array Z-Pinches by Proton Deflectometry*”, ICOPS 2012.
5. **Y. Paudel**, N. Renard-Le Galloudec, V.L. Kantsyrev, A.S. Safronova, A.Ya. Faenov, I. Shrestha, G.C. Osborne, V. V. Shlyaptseva, **Y. Sentoku**, “*Hollowing and filamentation of proton beams in high-intensity laser plasma interactions*”, 54th Annual Meeting of the APS Division of Plasma Physics, Providence, RI, Oct 29 - Nov 2, 2012.
6. **V. T. Davis, D. D. Davis, K. Chartkunchand, J. S. Thompson, and A. M. Covington**, “*Production Of SiO<sub>n</sub><sup>-</sup> And (SiO<sub>2</sub>)<sub>n</sub><sup>-</sup>, n= 2, 3, 4 Molecular And Cluster Anion Beams From A Cesium-Sputter-Type Negative Ion Source*,” AIP Proceedings of the 22nd International Conference on the Application of Accelerators in Research and Industry, August 2012.
7. **R. Pandit and Y. Sentoku**, “*Spectral and Angular Distribution of photons via Radiative damping in super intense laser-matter interaction*”, 54th Annual Meeting of the APS Division of Plasma Physics, Providence, Rhode Island, October 29 – November 2, 2012.
8. A. Chuvatin, V. Kantsyrev, **A. Astanovitsky, R. Presura**, A. Safronova, B. LeGalloudec, V. Nalajala, K. Williamson, I. Shrestha, G. Osborne, M. Weller, V. Shlyaptseva, L. Rudakov, M. Cuneo, “*Advanced Load Current Multiplier on Zebra Generator*”, Proceedings of the IEEE 18th Int. Pulsed Power Conference, pp. 975-982 (2012).
9. **I. Paraschiv and Y. Sentoku**, “*Radiation transport in PIC modeling of laser interaction with high-Z targets*”, Submitted to the 54th Annual Meeting of the APS Division of Plasma Physics, Providence, Rhode Island, October 29 – November 2, 2012.

## **Publications - 2012**

10. **H. Sawada**, T. Yabuuchi, S.P. Regan, K. Anderson, M.S. Wei, R. Betti, J. Hund, M.H. Key, A.J. Mackinnon, H.S. McLean, R.R. Paguio, P.K. Patel, K.M. Saito, R.B. Stephens, S.C. Wilks, F.N. Beg, “*Diagnosing Laser-Driven, Shock-Heated Foam Target with Al Absorption Spectroscopy on OMEGA EP*”, High Energy Density Physics, 8, 180-183 (2012).
11. V. Sotnikov, T. Kim, E. Mishin, W. Amatucci, G. Ganguli, E. Tejero, T.A. Mehlhorn, and **I. Paraschiv**, “*Low Frequency Plasma Turbulence as a Source of Clutterin Surveillance and Communication*”, 13th Annual Advanced Maui Optical and Space Surveillance Technologies Conference, Maui, Hawaii, September 11-14, 2012.

## **Invited Talks**

1. **H. Sawada**, ‘*Spectra of laser generated relativistic electrons using cone-wire targets*’ 54<sup>th</sup> Annual Meeting of the APS Division of Plasma Physics, Providence, RI, October 2012,
2. **R. Presura**, “Laboratory diagnostics primer for astronomers”, 9th Int. Conf. on High Energy Density Laboratory Astrophysics, Apr. 30 – May 4, 2012, Tallahassee, FL