

User and Staff FEL/Light Sources Publications

2011 Publications, Conferences and JLab Technical Notes

1. Shukui Zhang, Stephen Benson, Dave Douglas, Hao Zhang, Ralph Fiorito, "Advanced Beam Halo Diagnostics at the Jefferson Lab Free-Electron-Laser Facility," Abstract compiled for PAC 2011.
2. Shukui Zhang, Stephen Benson, Carlos Hernandez-Garcia, "Observation and Measurement of Temperature Rise and Distribution on GaAs Photo-cathode Wafer with a 532nm Drive Laser and a Thermal Imaging Camera," Nucl. Instr. & Methods **A631** 22 (2011).
3. Liang Zhao, Michael Kelley, "Effect of Surface Flow on Topography in Niobium Electropolishing," Abstract compiled for PAC 2011.
4. S. Zhang, S. Benson, P. Evtushenko, and F. Wilson, "A simple gating technique for high-average-current photo-injectors", Nucl. Instr. and Meth. **A629** 11 (2011).
5. C. Hernandez-Garcia, and M. Napsuciale, "Prospects for an Accelerator Program in Mexico Focused on Photon Science", Invited Talk compiled for XIV Mexican School on Particles and Fields, Journal of Physics:Conference Series to be published (2011).
6. G.P Williams, Foreword in "Biomedical Applications of Synchrotron Infrared Microspectroscopy", Edited by D. Moss, Royal Society of Chemistry, Cambridge, UK (2011).
7. C. Tennant & D. Douglas, Design Concept for a Compact ERL to Drive a VUV/Soft X-Ray FEL", Abstract compiled for PAC 2011.
8. G. Neil, "Energy Recovered Linacs for Light Source Applications", Abstract compiled for invited talk at PAC11.
9. F. Hannon, Optimizing the CEBAF injector for beam operation with a higher voltage electron gun", Abstract compiled for PAC 2011.
10. Stephen Benson, George Biallas, Keith Blackburn, James Boyce, Donald Bullard, James Coleman, Cody Dickover, David Douglas, Forrest Ellingsworth, Pavel Evtushenko, Carlos Hernandez-Garcia, Christopher Gould, Joseph Gubeli, David Hardy, Kevin Jordan, John Klopf, James Kortze, Robert Legg, Matthew Marchlik, Steven Moore, George Neil, Thomas Powers, Daniel Sexton, Michelle Shinn, Christopher Tennant, Richard Walker, Gwyn Williams, Frederick Wilson & Shukui Zhang, "Demonstration of 3D effects with high gain and efficiency in a UV FEL oscillator", Abstract compiled for PAC 2011.
11. R. Legg, S. Benson, G. Biallas, K. Blackburn, J. Boyce, D. Bullard, J. Coleman, C. Dickover, D. Douglas, F. Ellingsworth, P. Evtushenko, F. Hannon, C. Hernandez-Garcia, C. Gould, J. Gubeli, D. Hardy, K. Jordan, M.

- Klopf, J. Kortze, M. Marchlik, W. Moore, G. Neil, T. Powers, D. Sexton, M. Shinn, C. Tennant, R. Walker, G. Williams, G. Wilson, and S. Zhang, "Operation and Commissioning of the Jefferson Lab UV FEL using an SRF Driver ERL", Abstract compiled for PAC 2011.
12. D. Douglas, S. Benson, G. Biallas, K. Blackburn, J. Boyce, D. Bullard, J. Coleman, C. Dickover, F. Ellingsworth, P. Evtushenko, F. Hannon, C. Hernandez-Garcia, C. Gould, J. Gubeli, D. Hardy, K. Jordan, M. Klopf, J. Kortze, M. Marchlik, W. Moore, G. Neil, T. Powers, D. Sexton, M. Shinn, C. Tennant, R. Walker, G. Wilson, and S. Zhang, "Design of the SRF driver for the Jefferson Lab UV FEL", Abstract compiled for PAC 2011.
13. John H. Booske, Richard Dobbs, Carol L. Cory, George R. Neil, Gunsik Park, Jaehun Park and Richard Temkin, "Vacuum Electronic Sources for High Power Terahertz-Regime Radiation", Compiled for IEEE Transactions on Terahertz Science and Technology (2011).
14. Pavel Evtushenko, "Electron Beam Diagnostics of the JLab UV FEL", Abstract compiled for PAC 2011.
15. Alicia Hofler & Pavel Evtushenko, "Optimizing RF gun cavity geometry within an automated injector design system", Abstract compiled for PAC 2011.
16. S. V. Benson, D. R. Douglas, P. Evtushenko, F. E. Hannon, C. Hernandez-Garcia, J. M. Klopf, R. A. Legg, G. R. Neil, M. D. Shinn, C. D. Tennant, S. Zhang and G.P. Williams, "A proposed VUV oscillator-based FEL upgrade at Jefferson Lab", submitted to Journal of Modern Optics (2011).
17. S. Benson, M. Borland, D.R. Douglas, D. Dowell, C. Hernandez-Garcia, D. Kayran, G.A. Krafft, R. Legg, E. Moog, T. Obina, R. Rimmer and V. Yakimenko, "X-ray Sources by energy recovered linacs and their needed R&D," Nucl. Instr. & Methods in Physics Research, **A637** 1 (2011).
18. Chen Xu, Hui Tian, Charles E. Reece and Michael J. Kelley, "Topographic power spectral density study of the effect of surface treatment processes on niobium for superconducting radio frequency accelerator cavities", Phys. Rev. ST Accel. Beams **15** 043502 (2011).

2010 Publications, Conferences and JLab Technical Notes

1. S. L. Hulbert and G.P. Williams, "Synchrotron radiation sources", Chapter 55 of Volume 5 of the "Handbook of Optics", published by the Optical Society of America McGraw-Hill (2010).
2. George Neil, "High Power Free Electron Lasers", a chapter in High Power Laser Handbook, H. Injeyan, Editor, McGraw-Hill, (2010).
3. Michelle Shinn, Stephen Benson, George Biallas, Donald Bullard, Lawrence Dillon-Townes, Joseph Gubeli, Christopher Gould, George Neil, John Rathke, Tom Schultheiss, "Design and performance of an adjustable radius of curvature mirror using a thermal gradient", Submitted to Review of Scientific Instruments.

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5. Shukui Zhang, Stephen Benson, Joseph Gubeli, George Neil, Frederick Wilson, "Investigation and Evaluation on Pulse Stackers for Temporal Shaping of Laser Pulses" Proceedings of FEL10, Malmo, Sweden, p. 394 (2010).
6. Stephen Benson, David Douglas, George Neil, Michelle Shinn, "The Jefferson Laboratory FEL Program - Producing the World's First 4th Generation Light Source," Compiled for Journal of Physics G.
7. Stephen Benson, David Douglas, Pavel Evtushenko, Joseph Gubeli, Fay Hannon, Kevin Jordan, John Klopf, George Neil, Michelle Shinn, Christopher Tennant, Gwyn Williams, Shukui Zhang, "The JLAMP VUV/Soft X-ray User Facility at Jefferson Laboratory," Proceedings of IPAC'10, Kyoto, Japan p. 2302, (2010).
8. George Neil, Ultrafast X-ray Sources, McGraw-Hill 2010 Yearbook of Science and Technology.
9. George Neil, "Worldwide ERL R&D Overview Including JLAMP, BNL, and Cornell ERLs," Proceedings of LINAC10, the International Conference on Linear Accelerators, Tsukuba, Japan, September 2010 (Invited Review).
10. Andrei Afanasev, O.K. Baker, Kevin Beard, George Biallas, James R. Boyce, M. Minarni, R. Ramdon, Taylor Robinson, Michelle Shinn, P. Slocum, "LIPSS Free-Electron Laser Searches for Dark Matter," to be published in the proceedings of "Dark Side of the Universe" 2010.
11. Andrei Afanasev, Oliver Baker, Kevin Beard, George Biallas, James Boyce, J.L. Hirshfield, Yi Jiang, G. Kazakevich, M.A. LaPointe, A. Martin, Minarni Minarni, Roopchan Ramdon, Michelle Shinn, P. Slocum, A. Szymkowiak, "Weakly interacting sub-eV particle searches," to be published in the proceedings of AXIONS 2010.
12. David Douglas, "An Instrumentation Wish List for High Power/High Brightness ERLs," Proceedings of Beam Instrumentation Workshop BIW10, Santa Fe New Mexico, p. 506, 2010.
13. Walter Akers, Stephen Benson, David Douglas, Pavel Evtushenko, Joseph Gubeli, Christopher Tennant, "JLAMP Machine Geometry Options," Jefferson Lab TN-10-010.
14. Christopher Tennant, David Douglas, "JLAMP: Linac Optics v1.0," Jefferson Lab TN-10-012.
15. Christopher Tennant, David Douglas, "JLAMP: Longitudinal Match v1.0," Jefferson Lab TN-10-011.

16. Christopher Tennant, David Douglas, "JLAMP: Low Energy Recirculator v1.0," Jefferson Lab TN-10-023.
17. Pavel Evtushenko, Fay Hannon, Carlos Hernandez-Garcia, "Electrostatic Modeling of the Jefferson Laboratory Inverted Ceramic Gun," Proceedings of IPAC'10 Kyoto, Japan p. 2305 (2010).
18. Shukui Zhang, Carlos Hernandez-Garcia, "Heating Effect on GaAs Photocathode Wafer with 20W/532nm Green Laser Beam," Jefferson Lab TN-10-031.
19. Kevin Jordan, Michael W. Smith, "Synthesis of a New Class of Boron Nitride Nanotubes via the Pressurized Vapor/Condenser Method," Abstract compiled for NanoTech 2010.
20. Frederick Wilson, Thomas Powers, Daniel Sexton and Shukui Zhang, "Characterization and Suppression of the Electromagnetic Interference Induced Phase Shift in the JLab FEL Photo - Injector Advanced Drive Laser System," Jefferson Lab TN-10-030.
21. Shukui Zhang, "A Practical Method for Enhancing Laser Pulse Contrast Ratio for Electron-beam Accelerators and Other Applications," Jefferson Lab TN-10-032.
22. Chuyu Liu, Geoffrey Krafft, Michael Spata, Alex Bogacz, Slawomir Bogacz, Slawomir Bogacz, V. Areti, Shukui Zhang, Jim Clarke, Richard Talman, "CEBAF undulator radiation vs. APS undulator-A radiation," Jefferson Lab TN-10-014.
23. Hui Tian, Chen Xu, Charles E. Reece, Michael J. Kelley, "A Novel Approach to Characterizing the Surface Topography of Niobium Superconducting Radio Frequency (SRF) Accelerator Cavities," Appl. Surf. Sci. in press.
24. Xin Zhao, Sean G. Corcoran, Michael J. Kelley, "Sulfuric acid-methanol electrolytes as an alternative to sulfuric acid-hydrofluoric acids for electropolishing of niobium," submitted to J. Appl. Electrochem.
25. B.P. Xiao, C. E. Reece, H. L. Phillips, R-L. Geng, H. Wang, F. Marhauser, M. J. Kelley, "Radio Frequency Surface Impedance Characterization System for Superconducting Samples at 7.5 GHz," submitted to Rev. Sci. Instr.
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29. Hui Tian, Chen Xu, Charles E. Reece, Michael J. Kelley, "A Novel Approach to Characterizing the Surface Topography of Niobium Superconducting Radio Frequency (SRF) Accelerator Cavities", *Appl. Surf. Sci.* in press.
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3. S.L. Hulbert and G. P. Williams, "Calculations of Synchrotron Radiation Emission in the Transverse Coherent Limit", Rev. Sci. Instr. **80**, 106103 2009.
4. C. Tennant, "Progress at the Jefferson Laboratory FEL", Proceedings of PAC09, Vancouver, BC, Canada, p. 3125 (2009).
5. George Biallas, Mark Augustine, Kenneth Baggett, David Douglas, Robin Wines, "The SF system of sextupoles for the JLab 10 kW Free Electron Laser upgrade", Proceedings of PAC09, Vancouver, BC, Canada, p. 220 (2009).
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8. C. Tennant and Y. Roblin, "First Results of Transverse Phase Space Tomography in the Jefferson Laboratory FEL Upgrade Driver", JLAB-TN-09-021 (2009).
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10. Fay Hannon, Carlos Hernandez-Garcia, Pavel Evtushenko, George Biallas, Matthew Marchlik, Don Bullard, Forrest Ellingsworth, Kevin Jordan, Stephen Benson, "An inverted ceramic DC electron gun for the Jefferson Lab FEL", proceedings of FEL2009, Liverpool, UK, p. 383 (2009).
11. Carlos Hernandez-Garcia, Stephen Benson, George Biallas, James Boyce, Donald Bullard, James Coleman, David Douglas, P. Evtushenko, J. Gubeli, F. Hannon, K. Jordan, M. Klopf, Steven Moore, George Neil, Michelle Shinn, Christopher Tennant, R. Walker, G. Williams, S. Zhang "Status of the JLab ERL FEL DC Photoemission Gun", Proceedings of ERL09, Ithaca, NY, p. 37 (2009).
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2. A. Afanasev, O.K. Baker, K.B. Beard, G. Biallas, J. Boyce, M. Minarni, R. Ramdon, M. Shinn, P. Slocum, "Experimental limit on Optical Photon Coupling to Light Neutral, Scalar Bosons", Phys. Rev. Lett. **101** 120401 (2008).
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2007 Publications

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