

# Bryce Jacobson publications: 2008 – April 2024

## Journal & Conference Publications

### Peer-reviewed Journals:

1. J. Bohon, C. Grace, M. Gulley, **B. Jacobson**, S. Kachiguine, D. Kim, F. Martinez-Mckinney, N. Nagel, M. Nizam, R. Padilla, T. Prakash, E. Prebys, C. Rowling, B. A. Schumm, I. Silva Torrecilla, J. Smedley, D. Stuart, M. Wilder, D. Zhu; “Toward an integrated multi-gigahertz ionizing particle diagnostic,” *Rev. Sci. Instrum.* vol. 95, p. 063507, 1 June 2024.
2. R. Padilla, E. Gonzalez, S. Kachiguine, F. Martinez-Mckinney, S. Mazza, N. Nagel, M. Nizam, N. Norvell, E. Potter, E. Ryan, B.A. Schumm, M. Tarka, M. Wilder, **B. Jacobson**, J. MacArthur, I. Silva Torrecilla, J. Smedley, D. Zhu, D. Kim, J. Bohon, C. Grace, T. Prakash, C.T. Harris, D. Stuart, P. Freeman, E. Prebys, C. Rowling, “Development of diamond-based diagnostics for next-generation XFELs,” *Nucl. Instrum. Methods*, vol. 1057, p. 168763, June 2023.
3. A. H. Lumpkin, R. Thurman-Keup, D. Edstrom, P. Prieto, J. Ruan, **B. Jacobson**, J. Sikora, J. Diaz-Cruz, A. Edelen, and F. Zhou, “Submacropulse electron-beam dynamics correlated with higher-order modes in a Tesla-type cryomodule,” *Phys. Rev. Accel. Beams*, vol. 25, p. 064402, June 2022.
4. J. Bohon, E. Gonzalez, C. Grace, C. T. Harris, B. Jacobsen, S. Kachiguine, D. Kim, J. MacArthur, F. Martinez-McKinney, S. Mazza, M. Nizam, N. Norvell, R. Padilla, E. Potter, T. Prakash, E. Prebys, E. Ryan, B. A. Schumm, J. Smedley, D. Stuart, M. Tarka, I. S. Torrecilla, M. Wilder and D. Zhu, “Use of diamond sensors for a high-flux, high-rate X-ray pass-through diagnostic,” *J. Synchrotron Rad.*, vol. 29, p. 595, May 2022.
5. F. Zhou, C. Adolphsen, A. Benwell, G. Brown, D. H. Dowell, M. Dunning, S. Gilevich, K. Grouev, G. Huang, **B. Jacobson**, X. H. Liu, A. Miahnahri, F. Sannibale, J. Schmerge, and T. Vecchione, “Commissioning of the SLAC Linac Coherent Light Source II electron source,” *Phys. Rev. Accel. Beams*, vol. 24, p. 073401, July 2021.
6. A. Hanuka, C. Emma, T. Maxwell, A. S. Fisher, **B. Jacobson**, M. J. Hogan & Z. Huang, “Accurate and confident prediction of electron beam longitudinal properties using spectral virtual diagnostics,” *Sci. Rep.*, vol. 11, p. 2945, February 2021.
7. Alan S. Fisher, Christine I. Clarke, **Bryce T. Jacobson**, Ruslan Kadyrov, Evan Rodriguez, Mario Santana Leitner, Leonid Sapozhnikov, and James J. Welch, “Beam-loss detection for the high-rate superconducting upgrade to the SLAC Linac Coherent Light Source,” *Phys. Rev. Accel. Beams*, vol. 23, p. 082802, August 2020.
8. Z. Zhang, A. S. Fisher, M. C. Hoffmann, **B. Jacobson**, P. S. Kirchmann, W.-S. Lee, A. Lindenberg, A. Marinelli, E. Nanni, R. Schoenlein, M. Qian, S. Sasaki, J. Xub, Z. Huang, “A high-power, high-repetition-rate THz source for pump–probe experiments at Linac Coherent Light Source II,” *J. Synchrotron Radiat.*, vol. 27, p. 890, 2020.
9. Pardis Niknejadi, Jeremy M. D. Kowalczyk, Michael R. Hadmack, **Bryce T. Jacobson**, Ian Howe, Shidong Kan, Steven Smith, Eric B. Szarmes, Gary Varner, and John M. J. Madey, “Free-electron laser inverse-Compton interaction X-ray source,” *Phys. Rev. Accel. Beams*, vol. 22, p. 040704, 2019.
10. S.V. Kutsaev, **B. Jacobson**, A.Yu. Smirnov, T. Campese, V.A. Dolgashev, V. Goncharik, M. Harrison, A. Murokh, E. Nanni, J. Picard, M. Ruelas, and S.C. Schaub, “Nanosecond RF-power

switch for gyrotron-driven millimeter-wave accelerators,” *Phys. Rev. Appl.*, vol. 11, p. 034052, 2019. \*\* Editors’ Suggestion \*\*

11. E. C. Snively, N. T. Yardimci, **B. T. Jacobson**, M. Jarrahi, P. Musumeci, and A. Murokh, “Non-invasive low charge electron beam time-of-arrival diagnostic using a plasmonics-enhanced photoconductive antenna,” *Appl. Phys. Lett.*, vol. 113, p. 193501, 2018.
12. A.V. Smirnov, R. Agustsson, W.J. Berg, S. Boucher, J. Dooling, T. Campese, Y. Chen, L. Erwin, **B.T. Jacobson**, J. Hartzell, R. Lindberg, A. Murokh, E. Spranza, S. Pasky, M. Ruelas, N.S. Sereno, Y. Sun, A.A. Zholents, “Observation of a variable sub-THz radiation driven by a low energy electron beam from a thermionic RF electron gun,” *Phys. Rev. ST Accel. Beams*, vol. 18, p. 090703, 2015. \*\* Editors’ Suggestion \*\*
13. M.R. Hadmack, **B.T. Jacobson**, J.M.D. Kowalczyk, B.R. Lienert, J.M.J. Madey, E.B. Szarmes, “Electron bunch energy and phase feed-forward stabilization system for the MkV RF-linac free electron laser,” *Rev. Sci. Instrum.*, vol. 84, p. 063302, 2013.
14. K. Nishimura, T. Browder, H. Hoedlmoser, **B. Jacobson**, J. Kennedy, M. Rosen, L. Ruckman, G. Varner, A. Wong, W. Yen, “An imaging time-of-propagation system for charged particle identification at a Super B factory,” *Nucl. Instr. Meth. A*, vol. 623, p. 297, 2010.

#### Conference Proceedings:

1. B. Schumm et. al., “Development of ultra-fast diamond-sensor based systems for advanced accelerator diagnostics,” in *Proc. of IBIC*, 2024.
2. F. Decker, **B. Jacobson**, S. Hoobler, T. Kabana, W. Colocho, “Beam position monitors (BPMs), using their charge information at SLAC”, in *Proc. LINAC2024*, Aug. 2024, pp. 553-555.
3. A.S. Fisher, G.W. Brown, E.P. Chin, C.I. Clarke, W.G. Cobau, T. Frosio, **B.T. Jacobson**, R.A. Kadyrov, J.A. Mock, J. Park, E. Rodriguez, P.K. Roy, M. Santana-Leitner, J.J. Welch, “Commissioning Beam-Loss Monitors for the Superconducting Upgrade to LCLS,” in *Proc. of IBIC*, 2022.
4. Jorge Diaz Cruz, Auralee Edelen, Dean Edstrom, **Bryce Jacobson**, Alex Lumpkin, John Sikora, Randy Thurman-Keup, “Machine Learning Training for HOM reduction in a TESLA-type Cryomodule at FAST,” in *Proc. of IPAC*, 2022.
5. Isleydys Silva Torrecilla, Jen Bohon, Eric Gonzalez, Charles Harris, **Bryce Jacobson**, Sergei Kachiguine, Dongsung Kim, James MacArthur, Forest Martinez-Mckinney, Simone Mazza, Mohammad Nizam, Nora Norvell, Rene Padilla, Emma Potter, Eric Ryan, Bruce Schumm, John Smedley, Michal Tarka, Max Wilder, Diling Zhu, “Development of a Pass-Through Diagnostic for Next-Generation XFELs Using Diamond Sensors,” in *Proc. of IBIC*, 2021.
6. E.C. Aneke, A.S. Fisher, **B.T. Jacobson**, T.J. Maxwell, L. Sapozhnikov, “Design of the Bunch-Length Monitors for the New Superconducting LCLS Linac,” in *Proc. of IBIC*, 2021.
7. John Sikora, Jorge Diaz Cruz, Dean Edstrom, **Bryce Jacobson**, Alex Lumpkin, Peter Prieto, Jinhao Ruan, Randy Thurman-Keup, “Commissioning of the LCLS-II Prototype HOM Detectors with Tesla-Type Cavities at FAST,” in *Proc. of IPAC*, 2021.

8. A. H. Lumpkin, , J. Lorenzo Diaz-Cruz, D. Edstrom Jr., **Bryce Jacobson**, A. Lunin, John Sikora, R. Thurman-Keup, P. Prieto, J. Ruan, “Observation of Long-Range Wakefield Effects Generated in an Off-Resonance Tesla-Type Cavity,” in *Proc. of IPAC*, 2021.
9. A. H. Lumpkin, , J. Lorenzo Diaz-Cruz, D. Edstrom Jr., **Bryce Jacobson**, Peter S. Prieto, Jinhao Ruan, John Sikora, R. Thurman-Keup, Auralee Linscott Edelen, Feng Zhou, “Investigations of Long-Range Wakefield Effects in a TESLA-type Cryomodule at FAST,” in *Proc. of IPAC*, 2021.
10. R. Thurman-Keup, J. Lorenzo Diaz-Cruz, D. Edstrom Jr., **Bryce Jacobson**, A. H. Lumpkin, “Observation of Polarization-Dependent Changes in Higher-Order Mode Responses as a Function of Transverse Beam Position in Tesla-Type Cavities at FAST,” in *Proc. of IPAC*, 2021.
11. Jorge Diaz Cruz, Auralee Edelen, Dean Edstrom, **Bryce Jacobson**, Alex Lumpkin, John Sikora, Randy Thurman-Keup, “Machine Learning Training for HOM reduction and Emittance Preservation in a TESLA-type Cryomodule at FAST,” in *Proc. of IPAC*, 2021.
12. Alex Lumpkin, Jorge Diaz Cruz, Auralee Edelen, Dean Edstrom, **Bryce Jacobson**, P. Prieto, Jinhao Ruan, Randy Thurman-Keup, Feng Zhou, “Observations On Submicropulse Electron-beam Effects From Short-range Wakefields In Tesla-type Superconducting RF Cavities” in *Proc. of IPAC*, 2021.
13. Alex Lumpkin, Jorge Diaz Cruz, Auralee Edelen, Dean Edstrom, **Bryce Jacobson**, P. Prieto, Jinhao Ruan, Randy Thurman-Keup, Feng Zhou, “Direct Observations of Sub-micropulse Electron-beam Effects from Short-range Wakefields in TESLA-type Superconducting RF Cavities” in *Proc. of IBIC*, 2020.
14. A.S. Fisher, C.I. Clarke, **B.T. Jacobson**, R.A. Kadyrov, E. Rodriguez, L. Sapozhnikov, J.J. Welch, “Beam-loss detection for LCLS-II,” in *Proc. of IBIC*, 2019.
15. A.S. Fisher, A.L. Benwell, Y. Feng, **B.T. Jacobson**, “A Plasma Attenuator for Soft X-Rays in LCLS-II”, in *Proc. of FEL*, 2019
16. Zhen Zhang, Alan Fisher, Matthias Hoffmann, Zhirong Huang, **Bryce Jacobson**, Patrick Kirchmann, Wei Lee, Aaron Lindenberg, Emilio Nanni, Shigemi Sasaki, Robert Schoenlein, Joseph Xu, “A High-Power, High-Repetition Rate THz Source for LCLS-II Pump-Probe Experiments”, in *Proc. of FEL*, 2019.
17. F. Zhou, C. Adolphsen, A.L. Benwell, G.W. Brown, W.S. Colocho, Y. Ding, M.P. Dunning, K. Grouev, **B.T. Jacobson**, X. Liu, T.J. Maxwell, J.F. Schmerge, T.J. Smith, T. Vecchione, F.Y. Wang, C.M. Zimmer, G. Huang, F. Sannibale, “First commissioning of the LCLS-II CW injector source,” in *Proc. of IPAC*, 2019.
18. D. Mihalcea, **B. Jacobson**, A. Khizhanok, A. Murokh, P. Piot, J. Ruan, “High Spectral Density Compton Back-Scattered Gamma-Ray Sources at Fermilab,” in *Proc. of FEL*, 2017.
19. D. Mihalcea, **B. Jacobson**, A. Murokh, P. Piot, J. Ruan, “High brightness gamma-ray production at Fermilab Accelerator Science and Technology (FAST) facility,” in *AIP Conference Proc.*, vol. 1812, p. 100002, 2017.
20. Sergey Kutsaev, Ronald Agustsson, Anatoli Arodzero, Robert Berry, Salime Boucher, Yung-Chuan Chen, Josiah Hartzell, **Bryce Jacobson**, Alexander Laurich, Alex Murokh, Evgeny Savin, Alexander Smirnov, Avinash Verma, “Design, Simulations and Experimental Demonstration of

- an Intra-Pulse Ramped-Energy Travelling Wave Linac for Cargo Inspection,” in *Proc. of NAPAC*, 2016.
21. D. Mihalcea, **B. Jacobson**, A. Murokh, P. Piot, J. Ruan, “Design of a gamma-ray source based on inverse Compton scattering at the FAST superconducting linac,” in *Proc. of LINAC*, 2016.
  22. E. J. Curry, **B. T. Jacobson**, M. Jarrahi, P. Musumeci, N. T. Yardimci, “Synchronization of ps electron bunches and fs laser pulses using a plasmonics-enhanced large-area photoconductive detector,” in *Proc. of IBIC*, 2016.
  23. Alexei Smirnov, Ronald Agustsson, William Berg, Tara Campese, Yung-Chuan Chen, Jeffrey Dooling, Lester Erwin, Josiah Hartzell, **Bryce Jacobson**, Yujong Kim, Ryan Lindberg, Alex Murokh, Stanley Pasky, Marcos Ruelas, Nicholas Sereno, Yin-E Sun, Alexander Zholents, “Characterization of a Sub-THz Radiation Source Based on a 3 MeV Electron Beam and Future Plans,” in *Proc. of IPAC*, 2016.
  24. E. Curry, P. Musumeci, **B.T. Jacobson**, A. Murokh, “Sub-picosecond shot-to-shot electron beam and laser timing using a photoconductive THz antenna,” in *Proc. of IBIC*, 2015.
  25. T. Campese, R. Agustsson, M.A. Harrison, **B.T. Jacobson**, A. Murokh, A. Ovodenko, M. Ruelas, H.L. To, M. Fedurin, I. Pogorelsky, T. Shaften, “Multi-diagnostic transverse profile monitor chamber for extreme ultraviolet lithography,” in *Proc. of IBIC*, 2015.
  26. **B.T. Jacobson**, D. Gavryushkin, M. Harrison, K. Woods, “Angularly sensitive detector for transmission Kikuchi diffraction in a scanning electron microscope,” in *Proc. SPIE, Emerging Digital Micromirror Device Based Systems and Applications VII*, vol. 9376, 2015.
  27. **B.T. Jacobson**, D. Gavryushkin, M. Harrison, K. Woods, “Angularly sensitive detector for transmission Kikuchi diffraction in a scanning electron microscope,” in *Proc. SPIE, Emerging Digital Micromirror Device Based Systems and Applications VII*, vol. 9376, 2015.
  28. J.M.J. Madey, E.B. Szarmes, M.R. Hadmack, **B.T. Jacobson**, J.M.D. Kowalczyk, P. Niknejadi, “Optimized cavity-enhanced X-ray sources for X-ray microscopy,” in *Proc. SPIE, X-Ray Nanoimaging: Instrum. and Meth.*, vol. 8851, 2013.
  29. P. Niknejadi, M.R. Hadmack, **B.T. Jacobson**, J. Madey, G.S. Varner, “Time-resolved electron beam position monitor macropulse waveform measurement in MkV linear accelerator at University of Hawai’i Free Electron Laser Laboratory,” in *Proc. of IPAC*, 2013.
  30. **B.T. Jacobson**, J. Madey, P. Niknejadi, “Design and commissioning of Chasman-Green double bend achromatic lattice linear transport line at the University of Hawai’i MkV Accelerator Facility,” in *Proc. of IPAC*, 2013.
  31. **B.T. Jacobson**, M.R. Hadmack, J. Madey, P. Niknejadi, “Modular logarithmic amplifier beam position monitor readout system at the University of Hawai’i,” in *Proc. of IBIC*, 2012.
  32. J.M.J. Madey, E.B. Szarmes, M. Hadmack, **B. Jacobson**, S. Kan, “Compact optical undulator technology for a high brightness EUV lithography source,” in *Proc. of the 2<sup>nd</sup> International Workshop on EUV Lithography*, 2009.
  33. J.M.J. Madey, E.B. Szarmes, S. Kan, **B. Jacobson**, M. Hadmack, “Production of narrow band tunable EUV radiation using optimized high field optical undulators,” in *Proc. of the 2008 International Workshop on EUV Lithography*, 2008.

