

## CURRICULUM VITAE

William S. Graves  
Department of Physics  
Arizona State University  
550 E Tyler Mall PSF 470  
Tempe, AZ 85287-1504

### EDUCATION

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1994	University of Wisconsin – Madison	Ph.D. in Physics
1989	San Francisco State University	B.S. in Physics

### APPOINTMENTS

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2015 – present	Associate Professor	Arizona State University
2007 – 2015	Principal Research Scientist	Massachusetts Institute of Technology
2002 – 2007	Research Scientist	Massachusetts Institute of Technology
1993 – 2002	Staff Physicist	National Synchrotron Light Source, BNL

### PROFESSIONAL ACTIVITIES

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PI or Co-PI on grants from Dept of Energy, NSF, ONR, DARPA  
Member of ONR Technical Advisory Working Group on Free-Electron Lasers  
Member Organizing Committee OSA Compact Light Sources Workshop  
Referee for Phys Rev ST-AB, App Phys Lett, J. Opt Soc Am., Phys Rev Lett, and NIM A  
Guest Editor, Advances in Opt. Tech. special issue for Compton Scattering Light Sources  
Program committee member for Int'l Free Electron Laser conference (2002 – 2010),  
Particle Accelerator conference (2003 – 2005), and ICFA ERL workshop (2005 – 2007)

### PATENTS

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“Coherent Electron and Radiation Production via Electron Diffraction”, pending  
“Compact X-ray Source for CD-SAXS”, pending  
“Compact Coherent Current and Radiation Source”, US Patent No. 8,787,529  
“Compact, High-Flux, Short-Pulse X-Ray Source”, US Patent No. 7,391,850

### INTERESTS

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My primary interests are accelerator-based x-ray sources that advance the current state-of-the-art including high repetition rate inverse Compton scattering based on compact linacs, novel methods of coherent x-ray generation, accelerator technologies for generating high brightness electron beams, and seeded free-electron lasers.

Over 70 publications primarily in accelerator science. Selected papers include:

*Nano-modulated electron beams via electron diffraction and emittance exchange for coherent x-ray generation*, E.A. Nanni, W. S. Graves, and D.E. Moncton  
submitted to Phys. Rev. Lett. (June, 2015), arXiv:1506.07053

*High-density Au nanorod optical field-emitter arrays*  
RG Hobbs, Y Yang, PD Keathley, ME Swanwick, LF Velásquez-García, FX Kärtner, WS Graves, and KK Berggren  
Nanotechnology 25, 465304 (2014)

*Compact x-ray source based on burst-mode inverse Compton scattering at 100 kHz*  
W. S. Graves, J. Bessuille, P. Brown, S. Carbajo, V. Dolgashev, K.-H. Hong, E. Ihloff, B. Khaykovich, H. Lin, K. Murari, E. A. Nanni, G. Resta, S. Tantawi, L.E. Zapata, F.X. Kärtner, and D.E. Moncton  
Phys. Rev. ST Accel. Beams 17, 120701 (2014)

*High-Yield, Ultrafast, Surface Plasmon-Enhanced, Au Nanorod Optical Field Emitter Arrays*  
R. G. Hobbs, Y. Yang, A. Fallahi, P. D. Keathley, E. De Leo, F. X. Kärtner, W. S. Graves, and K. Berggren  
ACS Nano 8, 11474-11482 (2014)

*Compact XFEL light source*  
W.S. Graves, K.K. Berggren, S. Carbajo, R. Hobbs, K.-H. Hong, W. R. Huang, F.X. Kärtner, P. D. Keathley, D.E. Moncton, E. Nanni, K. Ravi, M. Swanwick, L. F. Velásquez-García, L.J. Wong, Y. Yang, L. Zapata, Y. Zhou, J. Bessuille, P. Brown, E. Ihloff, J. Derksen, A. Fallahi, F. Scheiba, X. Wu, D. Mihalcea, Ph. Piot, I. Viti  
Proceedings of the 2013 Int'l Free-electron Laser Conference, New York, NY (August, 2013)

*Intense superradiant x rays from a compact source using a nanocathode array and emittance exchange*  
W.S. Graves, F.X. Kaertner, and D.E. Moncton  
Phys. Rev. Lett 108, 263904 (2012)

*MIT inverse Compton source concept*  
W.S. Graves, W. Brown, F.X. Kaertner, D.E. Moncton  
Nuc. Instr. Meth. A **608** S103-S105 (2009)

*First ultraviolet high-gain harmonic-generation free electron laser*  
L.H. Yu, L. DiMauro, W.S. Graves, E.D. Johnson, R. Heese, S. Krinsky, H. Loos, J.B. Murphy, G. Rakowsky, J. Rose, T. Shaftan, B. Sheehy, J. Skaritka, X.J. Wang, Z. Wu  
Phys. Rev. Lett. **91** 074801 (2003)

*High-gain harmonic-generation free-electron laser*  
L.-H. Yu, M. Babzien, I. Ben-Zvi, L. F. DiMauro, A. Doyuran, W. Graves, E. Johnson, S. Krinsky, R. Malone, I. Pogorelsky, J. Skaritka, G. Rakowsky, L. Solomon, X.J. Wang, M. Woodle, V. Yakimenko, S.G. Biedron, J.N. Galayda, E. Gluskin, J. Jagger, V. Sajaev, I. Vasserman  
Science **289**, 932-934 (Aug. 11, 2000)