RESUME: ALAN M. M. TODD

CITIZENSHIP: USA

PROFESSIONAL EXPERIENCE:

Advanced Energy Systems (AES), Inc., Princeton, NJ, 1998-present

2013-present: Director, Chief Scientist and Co-President

1998-2013: Director, Chief Scientist and Vice President

Key individual in the establishment of Advanced Energy Systems (AES), in a leveraged buyout from Northrop Grumman. Today, AES is a leading Industrial organization worldwide in the design and fabrication of high-power injectors and accelerator components that are a critical element of high-power FELs and ERLs. Additionally, AES is the leading US manufacturer of SRF accelerator components and the only qualified US vendor for the ILC.

Dr. Todd is programmatically responsible for electron accelerator, free-electron laser and terahertz projects while being functionally responsible for physics as well as computational, engineering and systems analysis. He supervises most AES DOD, Commercial and SBIR programs while being actively involved in marketing AES technical expertise and products. He presently leads AES FEL and Homeland Security projects contract activities. Past programs led include the turnkey FHI FEL, the ISIS accelerator system, ONR FEL INP support to Boeing and Raytheon, a multi-year ONR BAA for FEL R&D, the tunable "Monochromatic X-Ray Imaging Systems" accelerator and a DOD project to develop "High-Power THz Imaging for Force Protection".

Dr. Todd is a Fellow of the American Physical Society (APS) and a Senior Member of the IEEE where he currently respectively serves on the Division of Physics of Beams (DPB) Nominating Committee and the Nuclear and Plasma Sciences Society (NPSS) Particle and Accelerator Science and Technology (PAST) Committees. Additionally, he is a member of the IPAC and PAC Organizing and Scientific Program Committees and the BNL ATF Program Advisory Committee.

Northrop Grumman Corporation, Princeton, NJ, 1979-1998

1995-1998: Manager, Accelerator Systems & Analysis

Dr. Todd also held the above AES functional and programmatic responsibilities within Advanced Systems and Technology of Northrop Grumman. Specific projects included: delivery to Brookhaven of an electron beamline for pulse radiolysis chemistry research (LEAF); physics support contracts with various National Laboratories; CRADAs with the Thomas Jefferson National Accelerator Facility, Brookhaven and Los Alamos National Laboratories; Compact Infrared FEL facility and Joint Research Agreement with Princeton University; Extreme Ultraviolet (EUV) Limited Liability Consortium (LLC) contracts; and activities supporting the US Navy 1 kW IRFEL project at Jefferson Lab. He was a member of the DPB Nominating Committee and PAC 1997 and 1999 Program Committees.

1987-1994: Senior Laboratory Head/Senior Scientist

In charge of the Computational and Plasma Physics Laboratory of the Corporate Research Center which performed theoretical and experimental research in fusion, electro-magnetic scattering (principally for low-observable applications), particle accelerators and sources, and FELs. Also responsible for fusion and accelerator technology in Advanced Energy Projects strategic business unit Principal investigator for Department of Energy fusion contracts and held leading roles on Grumman BMDO contracts. Specific charges included direction of electron accelerator and FEL programs, and technical direction of Grumman accelerator technology programs with Russian laboratories. Active in commercial and military application of high-brightness particle beams including: contraband detection, medicine, lithography and high-power ion accelerator programs such as the Accelerator Production of Tritium (APT). Member of Tokamak Physics Experiment Program Advisory Committee and BMDO advisory panels.

1989-1994: Chief Scientist

Chief Scientist for the U.S. Army Space and Strategic Defense Command (SSDC) Neutral Particle Beam Space Experiment (NPBSE).

1987-1993: Chief Scientist

Chief Scientist for the U.S. Army SSDC Continuous Wave Deuterium Demonstrator (CWDD) project, sited at Argonne National Laboratory.

1984-1991: Site Manager

Directed Grumman's Princeton operations, which focused on interfacing with New Jersey organizations, in particular, the Princeton Plasma Physics Laboratory (PPPL).

1979 -1988: Staff Scientist

Performed computational plasma physics research on magneto-hydrodynamic equilibrium, stability and transport in magnetic confinement fusion configurations. Conceived the Second Region eXperiment (SRX) concept, the first proposal to address second stability region access for enhanced Tokamak performance. Also studied Ion Cyclotron Range of Frequency (ICRF) heating and phase space modification effects in tokamaks and tandem mirrors using Monte Carlo techniques to solve the Fokker-Planck equation. Selected as the recipient of a DoE Young Investigator Fusion contract award. Beginning in 1986, channeled research towards accelerator technology research in beam dynamics and optics, focusing on high order aberration analysis coupled with space charge effects.

Princeton Plasma Physics Laboratory, 1974-1979:

Research Staff Scientist & Research Scientist

Contributed to the development of the Reactor Studies Group Princeton Reference Design. Performed equilibrium, ideal and resistive MHD stability and transport analysis of Tokamaks and Spheromaks. Instrumental in the computational discovery and subsequent understanding of ‘ballooning’ and ‘infernal’ instabilities.

Other:

1973-1974: Lecturer, City College of New York, NY, USA

1969-1970: Intern, Rolls Royce, Filton Division, Bristol, UK

EDUCATION:

B.Sc. (Honours 1st)	Aeronautical Engineering	1970	Bristol University, Bristol, UK
M.S.	Mechanical Engineering	1971	Columbia University, New York
M.Phil.	Physics	1973	Columbia University, New York
Ph.D.	Plasma Physics	1974	Columbia University, New York

PATENTS & DISCLOSURES (not including 4 related foreign filings):

- "A Spheromak formation scheme", U.S. Patent # 4,363,776, April 24, 1984
- "Mobile irradiation device", U.S. Patent # 5,814,821, September 29, 1998
- "Method and apparatus for producing extreme ultraviolet light for use in photolithography", U.S. Patent # 6,133,577, October 17, 2000
- "Method and apparatus for adjustably supporting a light source for use in photolithography", U.S. Patent # 6,194,733, February 27, 2001
- "System and method for producing terahertz radiation", U.S. Patent # 7,473,914 B2, January 6, 2009.

PROFESSIONAL AFFILIATIONS:

- American Physical Society (Fellow), Divisions of Physics of Beams, Division of Plasma Physics, Forum on Industrial and Applied Physics
- Institute of Electrical and Electronics Engineers (Senior Member), Nuclear & Plasma Sciences Society
- Sigma Chi
- American Society of Naval Engineers (ASNE)
- Directed Energy Professional Society (DEPS)
- National Defense Industry Association (NDIA)

SELECTED PUBLICATIONS:

More than a hundred and fifty publications, numerous invited and contributed talks, seminars and colloquia on the subjects of fusion and accelerator technology, including:

A. M. M. Todd et al. "Accelerators for Discovery Science and Security Applications," *NIMB* 60724, February 2, 2015.

A. M. M. Todd, "Prospects for Accelerator Technology," in *Reviews of Accelerator Science and Technology,* Eds. A. Chao and W. Chou, World Scientific, ISBN: 978-981-4383-98-1, **4** (2012) 235-255.

A. M. M. Todd, "State-of-the-Art Electron Guns and Injector Designs for Energy Recovery Linacs (ERL)", *Nucl. Instr. & Meth A* **557** (2006) 36-44.

A. M. M. Todd et al., "Photocathode Electron Gun Applications in Research and Industry*", AIP Conf. Proc*. **576** (2001) 615.

A. M. M. Todd, "Emerging Industrial Applications of Linacs", *Proc. 1998 Linac Conf.,* Chicago, IL, **2** (1998) 1036.

A. M. M. Todd, W. B. Colson and G. R. Neil, "Megawatt-Class Free Electron Laser for Shipboard Self-Defense", *Free-Electron Laser Challenges*, *SPIE Proc.* **2988** (1997) 176.

A. M. M. Todd, I. S. Lehrman, J. Krishnaswamy, V. Calia, and R. Gutowski, "Electron-Gun-Driven EUV Lithography System", *OSA Proc. on Extreme Ultraviolet Lithography*, Vol.**23**, Frits Zernike and David T. Attwood (eds.) (1995) 274.

A. M. M. Todd, M. P. S. Nightingale, T. J. Yule and the CWDD team, "The Continuous Wave Deuterium Demonstrator (CWDD) Design and Status", *1993 IEEE Particle Accelerator Conference*, IEEE 93CH3279-7 **3** (1993) 1777.

A. M. M. Todd, M. W. Phillips, M. S. Chance, J. Manickam, N. Pomphrey, "Stable Tokamak Access To, and Operation in the Second Stability Region," *Plasma Phys. and Cont. Nucl. Fusion Research 1986* **2** (1987) 37.

A. M. M. Todd, "A Monte Carlo Study of ICRF Start-up and Sustained Mode Operation in Tandem Mirrors", *Nucl. Fusion* **24** (1984) 1183.

A. M. M. Todd, M. S. Chance, J. M. Greene, R. C. Grimm, J. L. Johnson, and J. Manickam, "Stability Limitations on High-Beta Tokamaks", *Phys. Rev. Letters* **38** (1977) 826.

A. M. M. Todd, "Numerical Simulation of Shock-Heated Plasma with a Magnetic Dam", *Phys. Fluids* **18**, (1974) 453.

PROFESSIONAL SERVICES AND AWARDS

- International Particle Accelerator Conference (IPAC) Organizing Committee (2012 & 2015)
- International Particle Accelerator Conference (IPAC) Scientific Advisory Board (2009-present)
- Particle Accelerator Conference (PAC) Program Committee (1996-1999, 2009-present)
- Particle Accelerator Conference (PAC) Organizing Committee (2002-present)
- Chairman of the Jefferson Laboratory Industrial Advisory Board (2000-2007)
- Member of the UK 4GLS Industrial Advisory Board (2007)
- Elected Member of the Executive Committee of the APS Forum on Industrial and Applied Physics (2003-2007)
- APS Division of Physics of Beams Nominating Committee (1995-1996, 2003-2004, 2014-present)
- Chairman and organizer of the July 2003 and June 2001 DOD Joint Technology Office (JTO) workshops on "Navy Applications of FEL Systems"

- National Research Council Committee on High Energy Density Plasma Physics (2001-2002)
- Elected Member of IEEE NPSS Administrative Committee for Particle Accelerator Science & Technology (1999-2002)
- Chairman and organizer of workshop on "Navy MW-Class Shipboard Self-Defense FEL Concepts". September 24-25, 1996 in Newport News, VA.
- Tokamak Physics Experiment (TPX) Program Advisory Committee (1993-1994)
- Ballistic Missile Defense Organization (BMDO) Advisory Panels on Accelerator and Beam Optics (1990-1993)
- U.S.-Russian Protocol Exchange on "Computational MHD Analysis", Kurchatov Institute, Moscow, USSR (1978).
- Hele-Shaw Prize, Bristol University (1970).

COMPLETE PUBLICATIONS (156):

A. M. M. Todd et al. "Accelerators for Discovery Science and Security Applications," *NIMB* 60724, February 2, 2015.

H. P. Bluem, A. M. M. Todd et al., "Experimental Demonstration of a High-Power Smith-Purcell Source Using a Cylindrical Grating," *Proc. FEL 2014 Conf.,* Basel, Switzerland, August (2014).

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J. Gardelle, A. M. M. Todd et al., "Compact, High-Power TeraHertz Source Using Cylindrical Gratings," *Proc. ICOPS 2014 Conf.,* Washington, DC, USA, May (2014).

H. P. Bluem, A. M. M. Todd et al., "Experimental Demonstration of a High-Power Smith-Purcell Source Using a Cylindrical Grating," *to appear in Proc. ICOPS 2014 Conf.,* Washington, DC, USA, May (2014).

J. H. Park, A. M. M. Todd et al., "High-Charge Femtosecond Electron Generations for Ultrafast, High-Brightness Electron Beam Applications," *Proc. NAPAC 2013 Conf.*, New York, NY, USA, October (2013). http://accelconf.web.cern.ch/AccelConf/PAC2013/papers/tupsm04.pdf

W. Schöllkopf, A. M. M. Todd et al., "The IR and THz Free Electron Laser at the Fritz-Haber-Institut," *Proc. FEL 2013 Conf.*, New York, NY, USA, August (2013). http://accelconf.web.cern.ch/AccelConf/FEL2013/papers/wepso62.pdf

H. Junkes, A. M. M. Todd et al., "Integrating the FHI-FEL Into the FHI Research Environment - Design and Implementation Aspects," *Proc. FEL 2013 Conf.*, New York, NY, USA, August (2013). http://accelconf.web.cern.ch/AccelConf/FEL2013/papers/wepso30.pdf

Y.-M. Shin, A. M. M. Todd et al., "A Coaxially Coupled Deflecting-accelerating Mode Cavity System for Phase-space Exchange (PSEX)," *Proc. FEL 2013 Conf.*, New York, NY, USA, August (2013). http://accelconf.web.cern.ch/AccelConf/FEL2013/papers/tupso74.pdf

J. H. Park, A. M. M. Todd et al., "Generation of Ultrafast, High-brightness Electron Beams," *Proc. FEL 2013 Conf.,* New York, NY, USA, August (2013). http://accelconf.web.cern.ch/AccelConf/FEL2013/papers/tupso74.pdf

J. H. Park, A. M. M. Todd et al., "Developments of a High-average-current Thermionic RF Gun for ERLs and FELs," *Proc. FEL 2013 Conf.*, New York, NY, USA, August (2013). http://accelconf.web.cern.ch/AccelConf/FEL2013/papers/tupso58.pdf

Hans P. Bluem, Jonathan Jarvis, Alan M. M. Todd and Robert H. Jackson, "A Compact, High-Power THz Source: Concept & Simulation," *Proc. IVEC 2013 Conf.,* Paris, France, May (2013).

A. M. M. Todd, "Prospects for Accelerator Technology," in *Reviews of Accelerator Science and Technology,* Eds. A. Chao and W. Chou, World Scientific, ISBN: 978-981-4383-98-1, **4** (2012) 235-255.

S.A. Belomestnykh, A. M. M. Todd et al., "Developing of Superconducting RF Guns at BNL," *Proc. LINAC 2012*, Tel Aviv, Israel, September (2012). http://accelconf.web.cern.ch/AccelConf/LINAC2012/papers/mopb064.pdf

H. P. Bluem, A. M. M. Todd et al., "Accelerator Beamline Performance for the IR FEL at the Fritz-Haber-Institut, Berlin," *Proc. FEL 2012 Conf.,* Nara, Japan, August (2012). http://accelconf.web.cern.ch/AccelConf/FEL2012/papers/weoc04.pdf

W. Schöllkopf , A. M. M Todd et al., "First Lasing of the IR FEL at the Fritz-Haber-Institut Berlin," *Proc. FEL 2012 Conf.,* Nara, Japan, August (2012). http://accelconf.web.cern.ch/AccelConf/FEL2012/papers/moob01.pdf

S.C. Gottschalk, A. M. M. Todd et al., "Design and Performance of the Wedged Pole Hybrid Undulator for the Fritz-Haber-Institut IR ," *Proc. FEL 2012 Conf.,* Nara, Japan, August (2012). http://accelconf.web.cern.ch/AccelConf/FEL2012/papers/thpd13.pdf

R. H. Jackson, H. P. Bluem and A. M. M. Todd "High-Power THz Source," *to appear Proc. ICOPS 2012 Conf.,* Edinburgh, Scotland, July (2012).

A. M. M. Todd et al., "Commissioning of the Fritz Haber Institute Mid-IR FEL," *Proc. IPAC 2012 Conf.*, New Orleans, USA, May (2012). http://accelconf.web.cern.ch/AccelConf/IPAC2012/papers/tuppp087.pdf

J. H. Park, A. M. M. Todd et al., "Design of Ultrafast High-Brightness Electron Source," *Proc. IPAC 2012 Conf.,* New Orleans, USA, May (2012). http://accelconf.web.cern.ch/AccelConf/IPAC2012/papers/tuppd080.pdf

H. Bluem, D. Dowell, A.M.M. Todd and L.M. Young, "High Brightness Thermionic Electron Gun Performance," Proc. ERL 2011 Conf., Tsukuba, Japan, October (2011). http://accelconf.web.cern.ch/AccelConf/ERL2011/papers/wg1010.pdf

W. Schöllkopf , A. M. M Todd et al., "Status of the Fritz Haber Institute THz FEL," *Proc. FEL 2011 Conf.*, Shanghai, China, August (2011). http://accelconf.web.cern.ch/AccelConf/FEL2011/papers/tupb30.pdf

A. M. M. Todd et al. "Commissioning Status of the Fritz Haber Institute THz FEL," *Proc. IPAC 2011 Conf.*, San Sebastian, Spain, September (2011). http://accelconf.web.cern.ch/AccelConf/IPAC2011/papers/thpc106.pdf

A. M. M. Todd et al., "High-performance Accelerators for Free-Electron Laser (FEL) and Security Applications ," *Proc. PAC 2011 Conf.,* New York, NY, USA, March (2011). http://accelconf.web.cern.ch/AccelConf/PAC2011/papers/thp043.pdf

J. H. Park, A. M. M. Todd et al., "Status of the Polarized SRF Photocathode Gun Design," *Proc. PAC 2011, Conf.,* New York, NY, USA, March (2011). http://accelconf.web.cern.ch/AccelConf/PAC2011/papers/mop156.pd

H. P. Bluem, A. M. M. Todd et al., "The Fritz Haber Institute THz FEL Status," *Proc. FEL 2010 Conf.,* Malmo, Sweden, August (2010). http://accelconf.web.cern.ch/AccelConf/FEL2010/papers/mopa09.pdf

A. Kayran, A. M. M. Todd et al., "Status of High Current R&D Energy Recovery Linac at Brookhaven National Laboratory," *Proc. LINAC 2008 Conf.,* Vancouver, Canada (2008), http://accelconf.web.cern.ch/AccelConf/LINAC08/papers/tup028.pdf

D. Burggraff, A. M. M. Todd et al., "Free Electron Laser Performance Degradation with Quadrupole Magnet Misalignment", *Proc. Directed Energy Modeling and Simulation Symposium,* Monterey, CA (2008).

A. M. M. Todd et al., "Status of High-Power Free-Electron Laser Injector Development*," Proc. 10th Annual Directed Energy Symposium,* Huntsville, AL (2007).

A. M. M. Todd et al., "High-Power THz Radiation for Force Protection," *Proc. 10th Annual Directed Energy Symposium,* Huntsville, AL (2007).

T. Schultheiss, A. M. M. Todd et al., "High-average-current Normal-conducting RF Injector Design and Fabrication*," Proc. 10th Annual Directed Energy Symposium,* Huntsville, AL (2007).

J. M. Klopf, A. M. M. Todd et al., "The Jefferson Lab High Power THz User Facility," *Nucl. Instr, & Meth. A* **582** (2007) 114.

D. Holmes, A. M. M. Todd, et al., "Design and Analysis of a Megawatt Class Superconducting Photoinjector Cavity," *Proc. 2007 SRF Conf.*, Beijing, China, October (2007). http://www.pku.edu.cn/academic/srf2007/proceeding.html

M. Cole, A. M. M. Todd, et al., "Design and Fabrication of a Megawatt Class Superconducting Photoinjector," *Proc. 2007 SRF Conf.*, Beijing, China, October (2007). http://www.pku.edu.cn/academic/srf2007/proceeding.html

D. Holmes, A. M. M. Todd, et al., "Superconducting RF Photocathode Gun for Low Emittance Polarized Electron Beams," *Proc. 2007 SRF Conf.*, Beijing, China, October (2007). http://www.pku.edu.cn/academic/srf2007/proceeding.html

A. Burrill, A. M. M. Todd, et al., "Superconducting Photoinjector for High-Power Free Electron Lasers", *Proc. 2007 FEL Conf.*, Novosibirsk, Russia, August (2007) 290.

I. Ben-Zvi, A. M. M. Todd, et al., "Status of the R&D Towards Electron Cooling of RHIC", *Proc. 2007 Particle Accelerator Conf.*, ISBN 1-4244-0917-9 (2007) 1938.

V. N. Litvinenko, A. M. M. Todd, et al., "Status of R&D Energy Recovery Linac at Brookhaven National Laboratory", *Proc. 2007 Particle Accelerator Conf.*, ISBN 1-4244-0917-9 (2007) 1347.

M. H. Hughes and A. M. M. Todd, "High Power Free Electron Lasers for Ship Defense", *Proc. 9th Annual Directed Energy Symposium*, Albuquerque, NM (2006).

M. H. Hughes, A. M. M. Todd , D. Douglas and W. Colson, "On the Next Generation FEL", *Proc. Directed Energy Modeling and Simulation Symposium,* Monterey, CA (2006).

A. M. M. Todd, "State-of-the-Art Electron Guns and Injector Designs for Energy Recovery Linacs (ERL)", *Nucl. Instr. & Meth A* **557** (2006) 36-44.

A. M. M. Todd, et al., "Electron Injector Status for High-Power Free-Electron Laser Systems", *Proc. 8th Annual Directed Energy Symposium, Lihue, HI,* (2005).

M. H. Hughes, A. M. M. Todd, et al., "High-Power FEL Modeling", *Proc. 8th Annual Directed Energy Symposium, Lihue, HI,* (2005).

A. M. M. Todd, G. P. Williams, et al., "High-Power THz Source Development for IED Detection", *Proc. 8th Annual Directed Energy Symposium, Lihue, HI,* (2005).

H. P. Bluem, A.M. M. Todd et al., "Electron Gun and Injector Designs for State-of-the-Art FELs", *Proc. FEL 2005 Conf.*, Stanford, CA, USA, August (2005). http://accelconf.web.cern.ch/AccelConf/f05/PAPERS/MOPP054.PDF

A. M. M. Todd, H. P. Bluem, V. Christina, R. H. Jackson and G. P. Williams, "Transportable High-Power THz Source", *Proc. IRMMW-THz 2005 Conf.*, ISBN 0-7803-9349-X (2005) 497.

A. M. M. Todd et al., "State-of-the-Art Electron Guns and Injector Designs for Energy Recovery Linacs (ERL)", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 2292.

I. Ben-Zvi, A. M. M. Todd et al., "Electron Cooling of RHIC", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 2741.

V. Litvinenko, A. M. M. Todd et al., "High Current Energy Recovery Linac at BNL", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 2242.

J. R. Rathke, A. M. M. Todd et al., "Design and Fabrication of an FEL Injector Cryomodule", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 3724.

D. Janssen, A. M. M. Todd et al., "Axial RF Power Input in Photocathode Electron Guns", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 743.

I. Ben-Zvi, A. M. M. Todd et al., "Extremely High Current, High-Brightness Energy Recovery Linac", *Proc. 2005 Particle Accelerator Conf.*, ISBN 0-7803-8860-7 (2005) 1150.

A. M. M. Todd, et al., "Electron Injectors for High-Power Free-Electron Laser Systems", *Proc. 7th Annual Directed Energy Symposium* (2004).

A. M. M. Todd, et al., "Free-Electron Laser Weapon Concepts", *Proc. 7th Annual Directed Energy Symposium* (2004).

M. H. Hughes, A. M. M. Todd, et al., "High-Power FEL Modeling", *Proc. 7th Annual Directed Energy Symposium* (2004).

I. Ben-Zvi, A. M. M. Todd, et al., "Energy Recovery Linac Technology for Ampere CW Electron Beams", *Proc. 7th Annual Directed Energy Symposium* (2004).

I. Ben-Zvi, A. M. M. Todd, et al., "Ampere Average Current Photoinjector and Energy Recovery Linac", *Proc. 26th International FEL Conference,* ISBN 88-87992-02-9 (2004) 355.

V. N. Litvinenko, A. M. M. Todd, et al., "High Current Energy Recovery Linac at BNL", *Proc. 26th International FEL Conference,* ISBN 88-87992-02-9 (2004) 570.

H. P. Bluem, A. M. M. Todd, et al., "Electron Injectors for Next Generation X-Ray Sources", *Fourth Generation X-Ray Sources, Proc. SPIE* ***5534*** (2004) 132.

H. P. Bluem, A. M. M. Todd, et al., "High-Brightness Electron Guns for Next-Generation Light Sources and Accelerators X-Ray Sources", *Proc. 2004 European Particle Accelerator Conf.,* ISBN 92-9083-231-*2* (2004) 889.

M. H. Hughes , A. M. M. Todd, H.Bluem, W. Colson et al., " FEL Systems Analysis and Modeling", *Proc. Directed Energy Modeling and Simulation Symposium* (2004).

A. M. M. Todd, et al., "Compact High-Power Free-Electron Laser Systems", *Proc. 6th Annual Directed Energy Symposium* (2003).

H. P. Bluem, A. M. M. Todd, et al., "Recent Advances in High-Brightness Electron Guns at AES", *Nucl. Instr. & Meth.* **A 507** (2003) 215.

A. M. M. Todd et al., "High-Power Electron Beam Injectors for 100 kW Free-Electron Lasers", *Proc. 2003 Particle Accelerator Conf.*, ISBN 0-7803-7739-7 (2003) 977.

A. M. M. Todd, H. Bluem, M. D. Cole, J. Rathke,T. Schultheiss, G. R. Neil, J. Sekutowicz et al., "High-Power Electron Beam Injector for a 100 kW Free-Electron Laser (FEL)", *Proc. 5th Annual Directed Energy Symposium* (2002).

A. M. M Todd, M. Reusch and M. Hughes, W. B. Colson and D. R. Douglas, "FELSIM : FEL Systems Analysis Application", *Proc. 5th Annual Directed Energy Symposium* (2002).

A. M. M. Todd, H. Bluem, M. Hughes, D. R. Douglas, and W. B. Colson, "High-Power Free-Electron Laser (FEL) Point Design", *Proc. 5th Annual Directed Energy Symposium* (2002).

P. P. Crooker, J. Blau, T. Campbell, W. B. Colson, W. Ossenfort, S. V. Benson, D. R. Douglas, H. F. Dylla, G. R. Neil, M. D. Shinn and A. Todd, "A High-Power Megawatt-Class Free Elecron Laser Using a Short Rayleigh Length", *Proc. 5th Annual Directed Energy Symposium* (2002).

A. M. M. Todd, H. Bluem, M. Cole, J. Rathke and T. Schultheiss, "Recent Advances in High-Brightness Electron Guns at AES", *Proc. 2002 European Particle Accelerator Conf.,* ISSN 1684-761X (2002) 1756.

S. Peggs, A. M. M. Todd, et al., "The Rapid Cycling Medical Synchrotron, RCMS", *Proc. 2002 European Particle Accelerator Conf.,* ISSN 1684-761X (2002) 2754.

A. M. M. Todd et al., "High-Power, Compact, Free-Electron Laser Concepts", *Nucl. Instr. & Meth*. **A 483** (2002) II-5.

A. M. M. Todd, H. Bluem and G. R. Neil, "High-Current, Superconducting RF Injector for Free-Electron Lasers (FEL)", *Nucl. Instr. & Meth*. **A 483** (2002) II-7.

W. B. Colson, A. M. M. Todd, et al.,"A High-Power Free-Electron Laser Using a Short Rayleigh Length", *Nucl. Instr. & Meth*. **A 483** (2002) II-9.

A. M. M. Todd, H. Bluem and G. R. Neil, "Superconducting RF Injector for High-Power Free-Electron Lasers (FEL)", *Proc. 4th Annual Directed Energy Symposium* (2001).

J. Neuman, A. M. M. Todd , et al., "Beam Line Design at the Maryland Infrared Free Electron Laser", *Proc. 2001 IEEE Particle Accelerator Conf.,* ISBN 0-7803-7193-3 (2001) 2766.

C. Bohn, A. M. M. Todd, et al., "Physics Goals for the Planned Next Linear Collider Engineering Test Facility", *Proc. 2001 IEEE Particle Accelerator Conf.,* ISBN 0-7803-7193-3 (2001) 3783.

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