Stanford

# David Miller

W.M. Keck Foundation Professor of Electrical Engineering, Emeritus

Curriculum Vitae available Online  Resume available Online

## Bio

### BIO

David Miller (B. Sc., St. Andrews, Ph.D., Heriot-Watt) is the W. M. Keck Professor of Electrical Engineering Emeritus, and Professor by Courtesy of Applied Physics at Stanford University. Before Stanford, he was with Bell Laboratories from 1981 to 1996, as a department head from 1987. His research has covered semiconductor optics and optoelectronics, especially the discovery of the quantum-confined Stark effect in quantum wells and its application to optical modulators and switches; optics in digital systems, in particular his contributions to and analysis of the benefits of optical interconnects; nanophotonic structures and devices; fundamentals of optics and waves, including especially the concept of communication modes and its applications; and complex and controllable photonic circuits, including invention of universal architectures and of algorithms for their automatic configuration. He has published over 300 scientific papers, holds over 75 patents, has a Google h-index of over 110, is the author of the textbooks Quantum Mechanics for Scientists and Engineers (Cambridge, 2008) and Modern Physics for Engineers and Scientists (Miller Science, KDP, 2025), and has taught open online quantum mechanics classes to over 80,000 students. He was President of the IEEE LEOS (now Photonics Society) in 1995, and has served on boards for various societies, companies, and university and government bodies. He was awarded the Optica Adolph Lomb Medal, R. W. Wood Prize and Frederic Ives Medal/Jarus W Quinn Prize, the ICO International Prize in Optics, the IEEE Third Millennium Medal, and the 2013 Carnegie Millennium Professorship. He is also a Fellow of AAAS, APS, IEEE, Optica, the Electromagnetics Academy, the Royal Society of London and the Royal Society of Edinburgh, holds two Honorary Doctorates, and is a Member of the US National Academies of Sciences and of Engineering.

### ACADEMIC APPOINTMENTS

- Professor Emeritus, Electrical Engineering

### HONORS AND AWARDS

- Adolph Lomb Medal, OSA (1986)
- Fellow, OSA (1988)
- Fellow, APS (1988)
- R. W. Wood prize, OSA (1988)
- International Prize in Optics, International Commission for Optics (1991)
- Fellow, Royal Society (1995)
- Fellow, IEEE (1995)
- Honorary Degree, Vrije Universiteit Brussel (1997)
- Third Millennium Medal, IEEE (2000)
- Fellow, Royal Society of Edinburgh (2002)

- Honorary Degree, Heriot-Watt University (2003)
- Member, National Academy of Sciences (2008)
- Member, National Academy of Engineering (2010)
- Carnegie Millennium Professorship, Carnegie (2013)
- Fellow, Electromagnetics Academy (2014)
- Fellow, AAAS (2024)
- Frederic Ives Medal/Jarus W. Quinn Prize, Optica (2025)

### BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, National Academy of Sciences (2008 - present)
- Member, National Academy of Engineering (2010 - present)

### PROFESSIONAL EDUCATION

- BSc, St. Andrews University , Physics (1976)
- PhD, Heriot-Watt University , Physics (1979)

### LINKS

- My professional web page: https://dabm.stanford.edu/
- My Google Scholar page: https://scholar.google.com/citations?hl=en&user=mF_qs5sAAAAJ&view_op=list_works&sortby=pubdate

## Research & Scholarship

### CURRENT RESEARCH AND SCHOLARLY INTERESTS

David Miller’s research interests include the use of optics in switching, interconnection, communications, computing, and sensing systems, physics and applications of quantum well optics and optoelectronics, and fundamental features and limits for optics and nanophotonics in communications and information processing.

## Teaching

### COURSES

**2023-24**

- Applied Quantum Mechanics II: EE 223 (Win)

**2022-23**

- Applied Quantum Mechanics I: EE 222, MATSCI 201 (Aut)
- Applied Quantum Mechanics II: EE 223 (Win)

## Publications

### PUBLICATIONS

- **Universal programmable and self-configuring optical filter** *OPTICA*
  Miller, D. A. B., Roques-carmes, C., Valdez, C. G., Kroo, A. R., Vlk, M., Fan, S., Solgaard, O.
  2025; 12 (9): 1417-1426
- **Tunnelling escape of waves** *NATURE PHOTONICS*
  Miller, D. A. B., Kuang, Z., Miller, O. D.
  2024

- **Measuring, processing, and generating partially coherent light with self-configuring optics.** *Light, science & applications*
  Roques-Carmes, C., Fan, S., Miller, D. A.
  2024; 13 (1): 260
- **Determining the optimal communication channels of arbitrary optical systems using integrated photonic processors** *NATURE PHOTONICS*
  Seyedinnavadeh, S., Milanizadeh, M., Zanetto, F., Ferrari, G., Sampietro, M., Sorel, M., Miller, D. A. B., Melloni, A., Morichetti, F.
  2023
- **Why optics needs thickness.** *Science (New York, N.Y.)*
  Miller, D. A.
  2023; 379 (6627): 41-45
- **Inference in artificial intelligence with deep optics and photonics.** *Nature*
  Wetzstein, G., Ozcan, A., Gigan, S., Fan, S., Englund, D., Soljacic, M., Denz, C., Miller, D. A., Psaltis, D.
  2020; 588 (7836): 39–47
- **Programmable photonic circuits.** *Nature*
  Bogaerts, W. n., Pérez, D. n., Capmany, J. n., Miller, D. A., Poon, J. n., Englund, D. n., Morichetti, F. n., Melloni, A. n.
  2020; 586 (7828): 207–16
- **Waves, modes, communications, and optics: a tutorial** *ADVANCES IN OPTICS AND PHOTONICS*
  Miller, D. A. B.
  2019; 11 (3): 679–825
- **Unscrambling light-automatically undoing strong mixing between modes** *LIGHT-SCIENCE & APPLICATIONS*
  Annoni, A., Guglielmi, E., Carminati, M., Ferrari, G., Sampietro, M., Miller, D. A. B., Melloni, A., Morichetti, F.
  2017; 6
- **Universal modal radiation laws for all thermal emitters** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Miller, D. A., Zhu, L., Fan, S.
  2017; 114 (17): 4336-4341
- **Attojoule Optoelectronics for Low-Energy Information Processing and Communications** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
  Miller, D. A.
  2017; 35 (3): 346-396
- **Perfect optics with imperfect components** *OPTICA*
  Miller, D. A.
  2015; 2 (8): 747-750
- **Establishing Optimal Wave Communication Channels Automatically** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
  Miller, D. A.
  2013; 31 (24): 3987-3994
- **Reconfigurable add-drop multiplexer for spatial modes** *OPTICS EXPRESS*
  Miller, D. A.
  2013; 21 (17): 20220-20229
- **Self-configuring universal linear optical component** *PHOTONICS RESEARCH*
  Miller, D. A.
  2013; 1 (1): 1-15
- **Self-aligning universal beam coupler** *OPTICS EXPRESS*
  Miller, D. A.
  2013; 21 (5): 6360-6370
- **How complicated must an optical component be?** *JOURNAL OF THE OPTICAL SOCIETY OF AMERICA A-OPTICS IMAGE SCIENCE AND VISION*
  Miller, D. A.

2013; 30 (2): 238-251

- **Designing Linear Optical Components** *Optics in 2013 Special Issue, Optics and Photonics News, http://www.opnmagazine-digital.com/opn/december_2013#pg40*
  Miller, D., A. B.
  2013: 38
- **Establishing optimal wave communication channels automatically** *J. Lightwave Technol., http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6581883*
  Miller, D., A. B.
  2013; 31: 3987 – 3994
- **Self-configuring universal linear optical component** *Photon. Res., http://www.opticsinfobase.org/prj/abstract.cfm?URI=prj-1-1-1*
  Miller, D., A. B.
  2013; 1: 1-15
- **Reconfigurable add-drop multiplexer for spatial modes** *Opt. Express,http://www.opticsinfobase.org/oe/abstract.cfm?URI=oe-21-17-20220*
  Miller, D., A. B.
  2013; 21: 20220-20229
- **All linear optical devices are mode converters** *OPTICS EXPRESS*
  Miller, D. A.
  2012; 20 (21): 23985-23993
- **Energy consumption in optical modulators for interconnects** *OPTICS EXPRESS*
  Miller, D. A.
  2012; 20 (6): A293-A308
- **Device Requirements for Optical Interconnects to Silicon Chips** *PROCEEDINGS OF THE IEEE*
  Miller, D. A.
  2009; 97 (7): 1166-1185
- **Multi-plane spatially resolved phase structuring using optical communication modes** *JOURNAL OF OPTICS*
  de Angelis, V. S., Jeindl, M., Ambrosio, L. A., Miller, D. A. B., Capasso, F., Dorrah, A. H.
  2026; 28 (6)
- **Variational Processing of Multimode Squeezed Light** *PRX QUANTUM*
  Karnieli, A., Mor, P., Roques-Carmes, C., Lustig, E., Sloan, J., Vuckovic, J., Miller, D. A. B., Fan, S.
  2026; 7 (2)
- **Reconfigurable free-space mode generation and detection enabled by an active photonic integrated circuit coupled to a passive mode-selective interface.** *Communications physics*
  Boldin, A., Daly, U. J., Milanizadeh, M., Alsaigh, R., Chen, Z., Miller, D. A., Morichetti, F., Lavery, M. P.
  2026; 9 (1): 133
- **Three-wave interaction grating coupler with the sub-decibel insertion loss at normal incidence** *OPTICA*
  Valdez, C. G., Bongarz, S. A., Kroo, A. R., Miller, A. J., Digonnet, M. J. F., Miller, D. A. B., Solgaard, O.
  2026; 13 (2): 180-187
- **On-Chip Laser-Driven Free-Electron Spin Polarizer** *PHYSICAL REVIEW LETTERS*
  Woodahl, C., Murillo, M., Roques-Carmes, C., Karnieli, A., Miller, D. A. B., Solgaard, O.
  2026; 136 (6)
- **On-Chip Laser-Driven Free-Electron Spin Polarizer.** *Physical review letters*
  Woodahl, C., Murillo, M., Roques-Carmes, C., Karnieli, A., Miller, D. A., Solgaard, O.
  2026; 136 (6): 063802
- **Structuring light waves in 3D volumes with high precision using communication mode optics** *OPTICA*
  de Angelis, V., Dorrah, A., Ambrosio, L., Miller, D., Capasso, F.
  2025; 12 (9): 1502-1513

- **Transport Measurements of Majorization Order for Wave Coherence.** *Physical review letters*
  Guo, C., Miller, D. A., Fan, S.
  2025; 135 (5): 053801
- **Transport Measurements of Majorization Order for Wave Coherence** *PHYSICAL REVIEW LETTERS*
  Guo, C., Miller, D. A. B., Fan, S.
  2025; 135 (5)
- **Nonlocality in photonic materials and metamaterials: roadmap** *OPTICAL MATERIALS EXPRESS*
  Monticone, F., Mortensen, N., Fernandez-Dominguez, A. I., Luo, Y., Zheng, X., Tserkezis, C., Khurgin, J. B., Shahbazyan, T., Chaves, A. J., Peres, N. M. R., Wegner, G., Busch, K., Hu, et al
  2025; 15 (7): 1544-1709
- **Photonics Breakthroughs 2024: Arbitrary Mode Manipulation Using Reconfigurable Integrated Photonic Processors** *IEEE PHOTONICS JOURNAL*
  SeyedinNavadeh, S., Zanetto, F., Martinez, A., Ferrari, G., Miller, D. A. B., Melloni, A., Morichetti, F.
  2025; 17 (3)
- **High-contrast nulling in photonic meshes through architectural redundancy** *OPTICS LETTERS*
  Valdez, C. G., Sun, Z., Kroo, A. R., Miller, D. A. B., Solgaard, O.
  2025; 50 (11): 3660-3663
- **Bounds on the Coupling Strengths of Communication Channels and Their Information Capacities** *IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION*
  Kuang, Z., Miller, D. A. B., Miller, O. D.
  2025; 73 (6): 3959-3974
- **Automated Modal Analysis of Entanglement with Bipartite Self-Configuring Optics** *ACS PHOTONICS*
  Roques-Carmes, C., Karnieli, A., Miller, D. A. B., Fan, S.
  2025
- **Unitary control of multiport wave transmission** *PHYSICAL REVIEW A*
  Guo, C., Miller, D. A. B., Fan, S.
  2025; 111 (2)
- **Leveraging Architectural Redundancy for High Contrast Nulling with Photonic Meshes**
  Valdez, C. G., Kroo, A. R., Sun, Z., Miller, D. A. B., Solgaard, O., IEEE
  IEEE.2025
- **Reconfigurable Photonic Integrated Circuit for All-Optical Matrix Inversion**
  Cavicchioli, G., Miller, D. A. B., Engheta, N., Melloni, A., Morichetti, F.
  edited by Witzens, J., Poon, J., Zimmermann, L., Freude, W.
  SPRINGER INTERNATIONAL PUBLISHING AG.2024: 477-483
- **AstroPIC: Near-Infrared photonic integrated circuit coronagraph architecture for the Habitable Worlds Observatory**
  Sirbu, D., Belikov, R., Fogarty, K., Valdez, C., Sun, Z., Kroo, A., Solgaard, O., Miller, D. A. B., Guyon, O.
  edited by Matsuura, S., Perrin, M. D., Coyle, L. E.
  SPIE-INT SOC OPTICAL ENGINEERING.2024
- **Integrated Photonic Processors for Optical Free-Space Links [Invited Paper]**
  SeyedinNavadeh, S., Rojas, A., di Tria, A., Sacchi, E., Zanetto, F., Ferrari, G., Sampietro, M., Miller, D. A. B., Melloni, A., Morichetti, F., IEEE
  IEEE.2024
- **Scalable low-latency optical phase sensor array** *OPTICA*
  Sun, Z., Pai, S., Valdez, C., Milanizadeh, M., Melloni, A., Morichetti, F., Miller, D. A. B., Solgaard, O.
  2023; 10 (9): 1165-1172
- **Experimentally realized in situ backpropagation for deep learning in photonic neural networks.** *Science (New York, N.Y.)*
  Pai, S., Sun, Z., Hughes, T. W., Park, T., Bartlett, B., Williamson, I. A., Minkov, M., Milanizadeh, M., Abebe, N., Morichetti, F., Melloni, A., Fan, S., Solgaard, et al

2023; 380 (6643): 398-404

- **Power monitoring in a feedforward photonic network using two output detectors.** *Nanophotonics (Berlin, Germany)*
  Pai, S., Valdez, C., Park, T., Milanizadeh, M., Morichetti, F., Melloni, A., Fan, S., Solgaard, O., Miller, D. A.
  2023; 12 (5): 985-991
- **Power monitoring in a feedforward photonic network using two output detectors** *NANOPHOTONICS*
  Pai, S., Valdez, C., Park, T., Milanizadeh, M., Morichetti, F., Melloni, A., Fan, S., Solgaard, O., Miller, D. A. B.
  2023
- **Programmable Photonic Architecture Solving Systems of Ordinary Differential Equations**
  Cavicchioli, G., Melloni, A., Miller, D. A. B., Engheta, N., Morichetti, F., IEEE
  IEEE.2023
- **Automatic setting of multiple FSO orthogonal communication channels between photonic chips**
  SeyedinNavadeh, S., Milanizadeh, M., Zanetto, F., Grimaldi, V., De Vita, C., Ferrari, G., Miller, D. A. B., Melloni, A., Morichetti, F., IEEE
  IEEE.2023
- **Electromagnetic Information Theory in Phase-Space: A Quantum Tunnelling Approach**
  Gradoni, G., Miller, D. A. B., Creagh, S. C., IEEE
  IEEE.2023
- **Quantitative phase contrast imaging with a nonlocal angle-selective metasurface.** *Nature communications*
  Ji, A., Song, J. H., Li, Q., Xu, F., Tsai, C. T., Tiberio, R. C., Cui, B., Lalanne, P., Kik, P. G., Miller, D. A., Brongersma, M. L.
  2022; 13 (1): 7848
- **Multi-dimensional data transmission using inverse-designed silicon photonics and microcombs.** *Nature communications*
  Yang, K. Y., Shirpurkar, C., White, A. D., Zang, J., Chang, L., Ashtiani, F., Guidry, M. A., Lukin, D. M., Pericherla, S. V., Yang, J., Kwon, H., Lu, J., Ahn, et al
  2022; 13 (1): 7862
- **Spatially resolving amplitude and phase of light with a reconfigurable photonic integrated circuit** *OPTICA*
  Buetow, J., Eismann, J. S., Milanizadeh, M., Morichetti, F., Melloni, A., Miller, D. A. B., Banzer, P.
  2022; 9 (8): 939-946
- **Separating arbitrary free-space beams with an integrated photonic processor.** *Light, science & applications*
  Milanizadeh, M., SeyedinNavadeh, S., Zanetto, F., Grimaldi, V., De Vita, C., Klitis, C., Sorel, M., Ferrari, G., Miller, D. A., Melloni, A., Morichetti, F.
  2022; 11 (1): 197
- **Self-configuring programmable photonics for processing, communications and sensing**
  Miller, D. A. B., IEEE
  IEEE.2022
- **Photonic chips embrace piezo-optomechanics** *NATURE PHOTONICS*
  Miller, D. A. B.
  2021
- **Coherent self-control of free-space optical beams with integrated silicon photonic meshes** *PHOTONICS RESEARCH*
  Milanizadeh, M., Toso, F., Ferrari, G., Jonuzi, T., Miller, D. A. B., Melloni, A., Morichetti, F.
  2021; 9 (11): 2196-2204
- **Development of Quantum Interconnects (QuICs) for Next-Generation Information Technologies** *PRX QUANTUM*
  Awschalom, D., Berggren, K. K., Bernien, H., Bhave, S., Carr, L. D., Davids, P., Economou, S. E., Englund, D., Faraon, A., Fejer, M., Guha, S., Gustafsson, M., Hu, et al
  2021; 2 (1)
- **Wavelength-Division Multiplexed Optical Cryptocurrency**
  Pai, S., Abebe, N., Dubrovsky, M., Hwang, R. L., Karpov, M., Penkovsky, B., Miller, D. A. B., Solgaard, O., IEEE
  IEEE.2021
- **Self-Configuring Silicon-Photonic Receiver for Multimode Free Space Channels**

SeyedinNavadeh, S., Milanizadeh, M., Benci, G., De Vita, C., Klitis, C., Sorel, M., Zanetto, F., Grimaldi, V., Ferrari, G., Miller, D. A. B., Melloni, A., Morichetti, F., IEEE
IEEE.2021

- **Self-Configuring Complex Photonic Circuits**
  Miller, D. A. B., IEEE
  IEEE.2021
- **Multimode Free Space Optical Link Enabled by SiP Integrated Meshes**
  Milanizadeh, M., SeyedinNavadeh, S., Benci, G., De Vita, C., Klitis, C., Sorel, M., Zanetto, F., Ferrari, G., Miller, D. A. B., Melloni, A., Morichetti, F., IEEE
  IEEE.2021
- **Getting to femtojoule optics - what physics and what technology?**
  Miller, D. A. B., IEEE
  IEEE.2021
- **Quantitative Phase Contrast Imaging using Guided-mode Resonator Devices**
  Ji, A., Song, J., Li, Q., Kik, P. G., Miller, D. A. B., Brongersma, M. L., IEEE
  IEEE.2021
- **MEMS Photonic Networks For Parallelized Matrix Multiplication Using Wavelength-Division Multiplexing**
  Pai, S., Abebe, N., Hwang, R. L., Miller, D. A. B., Solgaard, O., IEEE
  IEEE.2021
- **Parallel Programming of an Arbitrary Feedforward Photonic Network** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
  Pai, S., Williamson, I. A. D., Hughes, T. W., Minkov, M., Solgaard, O., Fan, S., Miller, D. A. B.
  2020; 26 (5)
- **Adapting Mach-Zehnder Mesh Equalizers in Direct-Detection Mode-Division-Multiplexed Links** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
  Choutagunta, K., Roberts, I., Miller, D. A. B., Kahn, J. M.
  2020; 38 (4): 723–35
- **Parallel Fault-Tolerant Programming and Optimization of Photonic Neural Networks**
  Pai, S., Williamson, I. A. D., Minkov, M., Hughes, T. W., Solgaard, O., Fan, S., Miller, D. A. B., IEEE
  IEEE.2020
- **Saving Energy and Increasing Density in Information Processing Using Photonics**
  Miller, D. A. B., IEEE
  IEEE.2020
- **Experimental band structure spectroscopy along a synthetic dimension.** *Nature communications*
  Dutt, A., Minkov, M., Lin, Q., Yuan, L., Miller, D. A., Fan, S.
  2019; 10 (1): 3122
- **Matrix Optimization on Universal Unitary Photonic Devices** *PHYSICAL REVIEW APPLIED*
  Pai, S., Bartlett, B., Solgaard, O., Miller, D. A. B.
  2019; 11 (6)
- **Experimental Demonstration of Dynamical Input Isolation in Nonadiabatically Modulated Photonic Cavities** *ACS PHOTONICS*
  Dutt, A., Minkov, M., Lin, Q., Yuan, L., Miller, D. A. B., Fan, S.
  2019; 6 (1): 162–69
- **Experimental Band Structure Spectroscopy along the Synthetic Dimension**
  Dutt, A., Minkov, M., Lin, Q., Yuan, L., Miller, D. A. B., Fan, S., IEEE
  IEEE.2019
- **Ten-million years of activity within the Eastern California Shear Zone from U–Pb dating of fault-zone opal** *Earth and Planetary Science Letters*
  Nuriel, P., Miller, D. M., Schmitt, K. M., Coble, M. A., Maher, K.
  2019; 521: 37-45

- **Unscrambling light-automatically undoing strong mixing between modes.** *Light, science & applications*
  Annoni, A., Guglielmi, E., Carminati, M., Ferrari, G., Sampietro, M., Miller, D. A., Melloni, A., Morichetti, F.
  2017; 6 (12): e17110
- **Better choices than optical angular momentum multiplexing for communications** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Miller, D. A. B.
  2017; 114 (46): E9755–E9756
- **Better choices than optical angular momentum multiplexing for communications.** *Proceedings of the National Academy of Sciences of the United States of America*
  Miller, D. A.
  2017; 114 (46): E9755-E9756
- **Arbitrary and self-configuring photonic circuits for sensing and processing**
  Miller, D. A. B., IEEE
  IEEE.2017: 51–52
- **Attojoule optoelectronics-saving even more energy with optics**
  Miller, D. A. B., IEEE
  IEEE.2017: 89–90
- **Applied Optics. Sorting out light.** *Science*
  Miller, D. A.
  2015; 347 (6229): 1423-1424
- **Design of large scale plasmonic nanoslit arrays for arbitrary mode conversion and demultiplexing.** *Optics express*
  Wahl, P., Tanemura, T., Vermeulen, N., Van Erps, J., Miller, D. A., Thienpont, H.
  2014; 22 (1): 646-660
- **Design of large scale plasmonic nanoslit arrays for arbitrary mode conversion and demultiplexing** *Conference on Nanophotonics V*
  Wahl, P., Tanemura, T., Vermeulen, N., Van Erps, J., Miller, D. A., Thienpont, H.
  SPIE-INT SOC OPTICAL ENGINEERING.2014
- **Surface-Normal Ge/SiGe Asymmetric Fabry-Perot Optical Modulators Fabricated on Silicon Substrates** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
  Audet, R. M., Edwards, E. H., Balram, K. C., Claussen, S. A., Schaevitz, R. K., Tasyurek, E., Rong, Y., Fei, E. I., Kamins, T. I., Harris, J. S., Miller, D. A.
  2013; 31 (24): 3995-4003
- **Modal Source Radiator Model for Arbitrary Two-Dimensional Arrays of Subwavelength Apertures on Metal Films** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
  Tanemura, T., Wahl, P., Fan, S., Miller, D. A.
  2013; 19 (3)
- **Nanoscale resonant-cavity-enhanced germanium photodetectors with lithographically defined spectral response for improved performance at telecommunications wavelengths** *OPTICS EXPRESS*
  Balram, K. C., Audet, R. M., Miller, D. A.
  2013; 21 (8): 10228-10233
- **Energy-per-Bit Limits in Plasmonic Integrated Photodetectors** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
  Wahl, P., Tanemura, T., Debaes, C., Vermeulen, N., van Erps, J., Miller, D. A., Thienpont, H.
  2013; 19 (2)
- **Light emission from strained germanium** *NATURE PHOTONICS*
  Jain, J. R., Hryciw, A., Baer, T. M., Miller, D. A., Brongersma, M. L., Howe, R. T.
  2013; 7 (3): 162-163
- **Highly Tailored Computational Electromagnetics Methods for Nanophotonic Design and Discovery** *PROCEEDINGS OF THE IEEE*
  Liu, V., Miller, D. A., Fan, S.

2013; 101 (2): 484-493

- **Low-voltage broad-band electroabsorption from thin Ge/SiGe quantum wells epitaxially grown on silicon** *OPTICS EXPRESS*
  Edwards, E. H., Lever, L., Fei, E. T., Kamins, T. I., Ikonic, Z., Harris, J. S., Kelsall, R. W., Miller, D. A.
  2013; 21 (1): 867-876
- **B-CALM: AN OPEN-SOURCE MULTI-GPU-BASED 3D-FDTD WITH MULTI-POLE DISPERSION FOR PLASMONICS** *PROGRESS IN ELECTROMAGNETICS RESEARCH-PIER*
  Wahl, P., Ly-Gagnon, D., Bebaes, C., Van Erps, J., Vermeulen, N., Miller, D. A., Thienpont, H.
  2013; 138: 467-478
- **Attojoule optoelectronics - why and how** *IEEE-Photonics-Society Summer Topical Meeting*
  Miller, D. A.
  IEEE.2013: 28–29
- **Ge/SiGe Quantum Well Asymmetric Fabry-Perot Modulators on Silicon Substrates** *IEEE-Photonics-Society Summer Topical Meeting*
  Audet, R. M., Edwards, E. H., Balram, K., Rong, Y., Harris, J. S., Miller, D. A.
  IEEE.2013: 248–249
- **Separating arbitrary overlapping spatial modes losslessly and without calculations** *IEEE-Photonics-Society Summer Topical Meeting*
  Miller, D. A.
  IEEE.2013: 101–102
- **Nanoscale Integrated Planar Multispectral Image Sensors**
  Balram, K., C., Miller, D., A. B.
  2013
- **Separating arbitrary overlapping spatial modes losslessly and without calculations** *IEEE Photonics Society Summer Topical Meetings, Space Division Multiplexing for Optical Communications*
  Miller, D., A. B.
  2013
- **Nanoscale resonant-cavity-enhanced germanium photodetectors with lithographically defined spectral response for improved performance at telecommunications wavelengths** *2nd IEEE-Photonics-Society Optical Interconnects Conference*
  Balram, K. C., Audet, R. M., Miller, D. A.
  IEEE.2013: 25–26
- **Energy-per-bit and noise limits in plasmonic intergrated photodetectors** *Conference on Integrated Optics - Physics and Simulations*
  Wahl, P., Tanemura, T., Debaes, C., Vermeulen, N., Van Erps, J., Miller, D. A., Thiempont, H.
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