

Erica Krivoy Davis, Ph.D.

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Unique and effective combination of high-level technical expertise with outstanding interpersonal communication skills. Demonstrated ability to streamline processes and manage multiple objectives for efficient, detail-intensive technology development and deployment. Proven adaptability of creative problem-solving skills towards novel technologies and interdisciplinary challenges.

- Experience**
- DDM Systems, Inc.** Atlanta, GA
Process Engineer 2013 - 2015
- Project management of day-to-day operations on multiple LAMP (large area maskless photopolymerization) additive manufacturing tools, coordinated process technician and intern work flow
 - Established standard practices, developed written forms and operating procedures, and qualified measurement techniques, turning a graduate-level project into an industry-viable product
 - Interfaced with customers/vendors on a regular basis, supported long-term relationships and collaborations, assessed and communicated R&D requirements to customers, and provided regular written and oral progress reports
 - Designed and executed experiments for the advancement of intellectual property, sourced investigational materials, assisted in the development of proprietary software and internal database structure
- LASE Group, University of Texas at Austin** Austin, TX
Research Assistant 2009 - 2013
- Authored/co-authored 10+ publications and 20+ conference talks in the field of molecular beam epitaxy (MBE) grown III-V heterostructures and nanostructures for optoelectronic devices
 - Brought to operation an EPI Mod. Gen II MBE system, participated in regular maintenance of multiple systems, developed standard operating procedures, and trained/mentored 10+ graduate and undergraduate students
 - Established research collaborations within UT at Austin, as well as other universities and companies
- University of Texas at Austin, Department of Electrical & Computer Engineering** Austin, TX
Teaching Assistant 2008 - 2009
- Led laboratory portion of Introduction to Electrical Engineering for undergraduates, focusing on group-based projects, presentation skills and laboratory notebook etiquette
- Hinds Instruments** Hillsboro, OR
Research Engineer 2007 - 2008
- Assembled and executed laboratory experiments employing complex optical and electronic equipment focused on the improvement of the photoelastic modulator
 - Conducted literature reviews to determine new product applications, made novel market recommendations
- SRI International, Molecular Physics Laboratory** Menlo Park, CA
Student Researcher Summer 2006
- Investigated long pulse frequency modulation technique for performing stimulated Rayleigh scattering in liquids
- Carnegie Mellon University, Laboratory of Photonics** Pittsburgh, PA
Research Assistant Summer 2005
- Designed and developed a mid-infrared solid-state Chromium-doped CdSe laser for non-invasive cancer surgery and military applications
- Skills** Product development, project management, technical documentation and writing, materials science, nanotechnology, data analysis, basic proficiency in Python and LabView, ultra-high vacuum, molecular beam epitaxy, III-V optoelectronics, device and materials characterization, UV-based photopolymerization, additive manufacturing
Languages: Spanish -- Fluent
- Education**
- University of Texas at Austin** Austin, TX
Ph.D. in Electrical Engineering August 2013
Dissertation: "Rare-earth mononictide alloys for tunable, epitaxial metals"
- University of Texas at Austin** Austin, TX
M.S. in Electrical Engineering May 2010
- Carnegie Mellon University** Pittsburgh, PA
B.S. in Physics May 2007
Minor in Hispanic Studies

Selected Publications*

- [1] **E.M. Krivoy**, S. Rahimi, H.P. Nair, R. Salas, S.J. Maddox, D.J. Ironside, Y. Jiang, G. Kelp, G. Shvets, D. Akinwande, and S.R. Bank, "Growth and characterization of single crystal rocksalt LaAs using LuAs barrier layers," *Appl. Phys. Lett.*, vol. 101, no. 22, pp. 221908, Nov. 2012
- [2] **E.M. Krivoy**, H.P. Nair, A.M. Crook, S. Rahimi, S.J. Maddox, R. Salas, D.A. Ferrer, V.D. Dasika, D. Akinwande, and S.R. Bank, "Growth and characterization of LuAs films and nanostructures," *Appl. Phys. Lett.*, vol. 101, no. 14, pp. 141910, Oct. 2012
- [3] **E.M. Krivoy**, A. Vasudev, S. Rahimi, R. Synowicki, H.P. Nair, D.J. Ironside, G. Kelp, G. Shvets, D. Akinwande, M.L. Lee, M. Brongersma and S.R. Bank, "Rare-earth monopnictide alloys for tunable, epitaxial semimetallic films," in preparation for *Nano Lett*, July 2015
- [4] V.D. Dasika, **E.M. Krivoy**, H.P. Nair, K.W. Park, E.T. Yu, and S.R. Bank, "InAs quantum dot size and density control using Bi as a surfactant," *Appl. Phys. Lett.*, vol. 105, no. 25, pp. 253104, Dec. 2014
- [5] K.W. Park, **E.M. Krivoy**, H.P. Nair, S.R. Bank, and E.T. Yu, "Cross-sectional scanning thermal microscopy of ErAs/GaAs superlattices grown by molecular beam epitaxy," *Nanotechnology*, vol. 26, no. 26, pp. 265701, July 2015.
- [6] S. Rahimi, **E.M. Krivoy**, J. Lee, M.E. Michael, S.R. Bank and D. Akinwande, "Temperature and thickness dependence of electrical resistivity of La(x)Lu(1-x)As," *AIP Advances*, vol. 3, 082102, Aug. 2013.
- [7] R. Salas, **E. M. Krivoy**, A. M. Crook, H. P. Nair and S. R. Bank. Proceedings of SPIE. 8106, 81060P (2011)
- [8] B. Wang, E. Hinds, and **E. Krivoy**. Proceedings of SPIE. 7461, 746110 (2009)

Selected Conference Talks*

- [1] **E.M. Krivoy**, A. Vasudev, H.P. Nair, V.D. Dasika, R. Synowicki, R. Salas, S.J. Maddox, M. Brongersma and S.R. Bank, "Tunable, Epitaxial, Semimetallic Films for Plasmonics," *Conf. on Lasers and Electro Optics (CLEO)*, San Jose, CA, June 2013
- [2] V.D. Dasika, **E.M. Krivoy**, H.P. Nair, S.J. Maddox, K.W. Park, D. Jung, M.L. Lee, E.T. Yu and S.R. Bank, "InAs Quantum Dot Growth using Bismuth as a Surfactant of Optoelectronic Applications," *Conf. on Lasers and Electro Optics (CLEO)*, San Jose, CA, June 2013
- [3] K.W. Park, H.P. Nair, **E.M. Krivoy**, S.R. Bank and E.T. Yu, "Thermal characterization of rare earth/III-V superlattice and nanocomposite structures using scanned probe microscopy," *55th Electronic Materials Conf. (EMC)*, South Bend, IN, June 2013
- [4] S. Rahimi, **E.M. Krivoy**, J. Lee, S.R. Bank and D. Akinwande, "Temperature and thickness dependence of electrical resistivity of LaLuAs," *55th Electronic Materials Conf. (EMC)*, South Bend, IN, June 2013.
- [5] **E.M. Krivoy**, H.P. Nair, A.M. Crook, S. Rahimi, Y. Jiang, S.J. Maddox, R. Salas, G. Kelp, G. Shvets, M.A. Belkin, D. Akinwande, and S.R. Bank, "Rare-earth monopnictide alloys for tunable epitaxial semimetals," *North American Molecular Beam Epitaxy Conf. (NAMBE)*, Atlanta, GA, Oct. 2012
- [6] (Invited) S.R. Bank, **E.M. Krivoy**, A.M. Crook, H.P. Nair, R. Salas, and V.D. Dasika, "New Epitaxial Metallic Nanostructure Materials for Photonic Devices," *SPIE Optics and Photonics Meeting*, San Diego, CA, Aug. 2012
- [7] S.J. Maddox, H.P. Nair, V.D. Dasika, **E.M. Krivoy**, R. Salas, and S.R. Bank, "Molecular Beam Epitaxy Growth-Space Investigation of InAsBi and InGaAsBi on InAs," *International Symposium on Compound Semiconductors (ISCS)*, Santa Barbara, CA, Aug. 2012
- [8] V.D. Dasika, **E.M. Krivoy**, H.P. Nair, K.W. Park, E.T. Yu, and S.R. Bank, "InAs Quantum Dot Growth using Bi as a Surfactant," *54th Electronic Materials Conf. (EMC)*, University Park, PA, June 2012
- [9] **E.M. Krivoy**, H.P. Nair, A.M. Crook, S. Rahimi, Y. Jiang, S.J. Maddox, R. Salas, M.A. Belkin, D. Akinwande, and S.R. Bank, "Rare-earth monopnictides films for tunable frequency transparent Ohmic contacts," *54th Electronic Materials Conf. (EMC)*, June 2012
- [10] **E.M. Krivoy**, H.P. Nair, S.J. Maddox, R. Salas, S. Rahimi, Y. Jiang, M.A. Belkin, D. Akinwande, and S.R. Bank, "Growth of high-quality rocksalt LaAs on LuAs seeded templates," *54th Electronic Materials Conf. (EMC)*, June 2012
- [11] S.J. Maddox, H.P. Nair, V.D. Dasika, **E.M. Krivoy**, R. Salas, and S.R. Bank, "Molecular Beam Epitaxial Growth and Optical Quality of InAsBi," *54th Electronic Materials Conf. (EMC)*, State College, PA, June 2012
- [12] **E.M. Krivoy**, S.J. Maddox, H.P. Nair, A.M. Crook, V.D. Dasika, D.A. Ferrer, and S.R. Bank, "LuAs films and nanostructures," *North American Molecular Beam Epitaxy Conf. (NAMBE)*, San Diego, CA, Aug. 2011
- [13] R. Salas, **E.M. Krivoy**, A.M. Crook, H.P. Nair, and S.R. Bank, "Compositional Grading of In_xGa_{1-x}As/GaAs Tunnel Junctions Enhanced by ErAs Nanoparticles," *Proc. SPIE*, San Diego, CA, Aug. 2011
- [14] R. Salas, **E.M. Krivoy**, A.M. Crook, H.P. Nair, and S.R. Bank, "Compositional Grading of GaAs-Based Tunnel Junctions Containing ErAs Nanostructures," *53rd Electronic Materials Conf. (EMC)*, Santa Barbara, CA, June 2011

*For a complete list of publications and conference talks, please visit <http://www.emkrivoy.com>