**ARIZONA STATE UNIVERSITY**

***School of Electrical, Computer and Energy Engineering***

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**Professional Preparation:**

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| Arizona State University | Electrical Engineering | PhD, 1995 |
| Ss Cyril and Methodius (Macedonia) | Electrical Engineering | MS, 1992 |
| Ss Cyril and Methodius (Macedonia) | Electrical Engineering | BS, 1985 |

**Appointments:**

*August 15th 2007 - Present:* Professor, Arizona State University, Department of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ.

*July 19th – August 15th 2014:* Visiting Professor at the School of Electrical Engineering, Universidade Federal do Rio Grande do Sul, PGMICRO – Programa de Pos-Graduacao em Microeletronica, Brazilian Government Grant.

*September 10th, 2012 – December 15th 2012:* on Sabbatical Leave at the Institute for Microelectronics, Technical University of Vienna, Vienna, Austria (H. Kosina and S. Selberrher).

*Summers of 2006 - 2013:* Visiting Professor, Purdue University, West Lafayette, IN (G. Klimeck).

*December 15th 2005 – May 15th, 2006:* on sabbatical leave at Purdue University, West Lafayette, IN.

*August 15, 2003-August 14, 2007:* Associate Professor, Arizona State University, Tempe, Arizona.

*August 15, 1997-August 14, 2003:* Assistant Professor, Arizona State University, Tempe, Arizona.

*August 15, 1995-August 14, 1997:* Faculty Research Associate, Arizona State University, Tempe, AZ.

*January 1991-August 15th, 1995:* Graduate Research Associate, Arizona State University, Tempe, AZ.

*January 1986-December 1990:* On the Faculty in the College of Electrical Engineering, University Sts. Cyril and Methodius, Skopje, Republic of Macedonia (permanent position).

**Products:**

1. D. Vasileska and S. M. Goodnick, *Computational Electronics*, Morgan and Claypool, 2006.
2. D. Vasileska, S. M. Goodnick and G. Klimeck, *Computational Electronics: Semiclassical and Quantum Transport Modeling*, Taylor & Francis, 2010.
3. D. Vasileska, Editor, *Cutting Edge Nanotechnology*, In-Tech, March 2010.
4. D. Vasileska and S. M. Goodnick, Editors, *Nanoelectronic Devices: Semiclassical and Quantum Transport Modeling*, Springer, July 2011.
5. K. Raleva, A. R. Shaik, D. Vasileska and S. M. Goodnick, *Modeling Self-Heating Effects in Nanoscale Devices*, IoP Concise Physics, Morgan & Claypool Publishers, 2017.

**Synergistic Activities:**

**Innovations in Teaching and Training** – developed tool-based curricula ABACUS (5,175 total users served out of which 1,191 users in 134 classes), AQME (885 total users served out of which 38 users in 10 classes) and ACUTE (231 total users) on the nanoHUB.org to support education. For all tools and educational material that Prof. Vasileska has developed, up to date there have been total of 18,583 ‘simulation users’ and 241,854 ‘total simulation and more’ users served. (04/21/2014 - gathered the statistics)

**Professional Service** –

* **Co-General Chair of the 2012 SBMicro Conference, Brazilia, Brazil.**
* **Editorial Board Member** of the Journal of Computational Electronics since 2012.
* **Editorial Board Member** of the Nanoscale Systems: Mathematical Modeling, Theory and Applications since 2012.
* On the program Committee (2000 – present) of the NSTI Nanotech Conference, IWCN
* **Editorial Board Member** of the Journal of Computational and Theoretical Nanoscience since 2006.

**Industry Collaborations** – Research project sponsored by DOE and First Solar (1.8 M for three years: Unified Numerical Solver for Modeling Device Metastabilities in CdS/CdTe Solar Cells).

**Innovation and Entrepreneurship Activities –** *development/refinement of research tools* for modeling nanoscale MOSFETs and GaN HEMTs; *development of state of the art computation methodologies* (treatment of the short-range electron-electron interactions, Contact Block Reduction Method for quantum transport, treatment of self-heating effects in conjunction with particle-based device simulators) and *algorithms* for incorporation of the electromechanical coupling (implemented also in the Synopsys software by our recommendation).

**Collaborators and Other Affiliations**

**Collaborators and Co-Editors:** R. Akis (ASU), S. M. Goodnick (ASU), O. Hartin (Freescale), G. Klimeck (Purdue), H. Kosina (TU Vienna, Austria), M. Lundstrom (Purdue), M. Nedjalkov (TU Vienna, Austria), K. Raleva (UKiM, Macedonia), C. Ringhofer (ASU), I. Sankin (First Solar), J. Sites (CSU), S. Wei (NREL).

**Graduate Advisor and Postdoctoral Sponsor:** David K. Ferry (ASU)

**Thesis Advisor and Postgraduate-Scholar Sponsor:**

**REU:** Jason Harris, Milorad Felbapov, Spenser Everingham, Stephanie Padilla, Matthew Buresh.

**M.S.:** X. He (Micron), S. Milicic (Research Faculty, UW, Madison), G. Speyer (Permanent Research Stuff, Mayo Clinic), S. Gonzalez (Hispanic-Intel, Chandler), S. Kaur (woman-Freescale, Tempe), S. S. Ahmed (Associate Professor, University of Illinois, Carbondale), T. Khan (Intel, Austin), S. Krishnan (Micron, San Jose), A. Ashok (Intel, Hillsboro), A. Mannargudi (Micron, San Jose), E. Ramayya (Intel, Hillsboro), P. Ramaprasad (woman-Ph.D. Student, ASU), G. Stojanovic (woman- Intel, Santa Clara), B. Padmanabhan (ON Semiconductor, Phoenix), G. Kannan (Ph.D ASU), R. Hathwar (Ph.D student, ASU), P. Muralidharan (Ph.D student, ASU), M. Gada (private company), Da Guo (PhD Student ASU), S. S. Qazi (PhD Student ASU), X. Guo (PhD Student Purdue), S. K. Yoo (), A. R. Shaik (PhD Student - ASU), A. Laturia (PhD Student – UT Dallas), N. V. Kumar (PhD Student – ASU), A. Mukherjee (PhD Student – SUNY Stony Brook).

**Ph.D.:** W. J. Gross (Intel, Chandler), S. S. Ahmed (Professor, University of Illinois, Carbondale), T. Khan (Intel, Austin), S. Krishnan (Micron, San Jose, CA), H. R. Khan (Intel, Hillsboro), A. Ashok (Intel, Hillsboro, OR), A. Hossain (Intel, Chandler, AZ), N. Ashraf (Assistant Profe, sor North-South University, Bangladesh), B. Padmanabhan (ON Semiconductors), Katerina Raleva (Associate Professor, UKiM, Macedonia), D. Guo (First Solar), Y. Fang (NXP), G. Kannan (ASU).

**Postgraduate Students:** R. Akis (Research Faculty, ASU), B. Zorman (Independent Contractor), D. Mamaluy (Sandia National Lab), M. Nedjalkov (Research Faculty, Technical University of Vienna, Austria), Daniel Brinkman (Assistant Professor, SJSU).

**Fulbright Fellow:** Tuoc Vu (Professor and Chair, Hanoi University, Vietman), Suleman Sami Qazi (PhD student, ASU).

**Visiting Professor:** Yan Cheng (China: 2012-2013).

**Visiting Students:** Vinicius Valduga Almeida de Camargo (UFRGS, Brazil - 2014), Serra Altinoluk (Turkey - 2014), Alan Rossetto (UFRGS, Brazil – 2015 to 2016, 1 year).

**Total number of REUs = 5;** **MS Students = 26; PhD Students = 13, Postdocs = 5; Fulbright=2.**

**PUBLICATIONS**

**Refereed Archival Journal Papers (published):**

1. K. Tsukioka, D. Vasileska and D. K. Ferry, “An ensemble Monte Carlo study of high-field transport in -SiC”, *Physica B* 185, 466-470 (1993).
2. Jing-Rong Zhou, D. Vasileska and D.K. Ferry, “Modeling of -SiC MESFETs using hydrodynamic equations”, *Solid State Electronics* 36, No. 9, 1289 (1993).
3. D. Vasileska, P. Bordone, T. Eldridge and D.K. Ferry, “Calculation of the average interface field in inversion layers using zero-temperature Green’s functions formalism”, *J. Vac. Sci. Technol. B* 13, 1841-7 (1995).
4. P. Bordone, D. Vasileska and D.K. Ferry, “Collision duration time for optical phonon emission in semiconductors”, *Physical Review B* 53, 3846-55 (1996).
5. D. Vasileska, T. Eldridge and D.K. Ferry, “Quantum transport: Silicon inversion layers and InAlAs-InGaAs heterostructures”, *J. Vac. Sci. Technol. B* 14, 2780-5 (1996).
6. S. Udipi, D. Vasileska and D.K. Ferry, “Numerical modeling of silicon quantum dots”, *Superlattices and Microstructures* 20, 343-7 (1996).
7. D. Vasileska, P. Bordone, T. Eldridge and D. K. Ferry, “Quantum transport calculations for silicon inversion layers in MOS structures”, *Physica B* 227, 333-5 (1996).
8. D. Vasileska and D. K. Ferry, “Scaled silicon MOSFET’s: Part I - Universal mobility behavior”, *IEEE Trans. Electron Devices* 44, 577-83 (1997).
9. D. Vasileska, D. K. Schroder and D.K. Ferry, “Scaled silicon MOSFET’s: Part II - Degradation of the total gate capacitance”, *IEEE Trans. Electron Devices* 44, 584-7 (1997).
10. D. K. Ferry, R. Akis, S. Udipi, D. Vasileska, D. P. Pivin, Jr., K. M. Connoly, J. P. Bird, K. Ishibashi, Y. Aoyagi, T. Sugano and Y. Ochiai, "Carrier transport in nanodevices”, *Jpn. J. Appl. Phys*. 36, 1841-5 (1997).
11. G. Formicone, D. Vasileska and D.K. Ferry, “Transport in the surface channel of strained Si on a relaxed Si1-xGex substrate”, *Solid State Electronics* 41, 879-886 (1997).
12. G. F. Formicone, D. Vasileska and D. K. Ferry, “Modeling of submicron Si1-xGex-based MOSFETs by self-consistent Monte Carlo simulation”, *Phys. Stat. Sol. (b)* 204, 531-3 (1997).
13. Y. Okubo, Y. Ochiai, D. Vasileska, R. Akis, D.K. Ferry, J.P. Bird, K. Ishibashi, Y. Aoyagi, and T. Sugano, “Stability of regular orbits in ballistic quantum dots”, *Physics Letters A* 236, 120-4 (1997).
14. Y. Okubo, N. Sasaki, Y. Ochiai, J.P. Bird, K. Ishibashi, Y. Aoyagi, T. Sugano, D. Vasileska, R. Akis, and D.K. Ferry, "Periodically recurring wavefunction scarring and magneto-transport in quantum dots", *Physica* *B* 246-7, 266-9 (1998).
15. R. Akis, D. Vasileska, D.K. Ferry, Y. Okubo, Y. Ochiai, J.P. Bird, K. Ishibashi, Y. Aoyagi, and T. Sugano, “Stability of regular orbits in ballistic quantum dots”, *Physica B* 249-251, 368-372 (1998).
16. Y. Ochiai, Y. Okubo, N. Sasaki, J.P. Bird, K. Ishibashi, Y. Aoyagi, T. Sugano, A.P. Micolich, R.P. Taylor, R. Newbury, D. Vasileska, R. Akis, and D.K. Ferry, “Wavefunction scarring and magneto-transport in quantum dots”, *Physica B* 249-251, 353-7 (1998).
17. Y. Ochiai, L.-H. Lin, K. Yamamoto, K. Ishibashi, Y. Aoyagi, T. Sugano, J.P. Bird, D. Vasileska, R. Akis, and D.K. Ferry, “Low-temperature magneto-transport in ballistic quantum dots and wires”, *Semicond. Sci. Technol.* 13, No. 8A, pp. A15-A17 (1998).
18. D. Vasileska, M.N. Wybourne, S.M. Goodnick, and A.D. Gunther, “3D simulation of GaAs/AlGaAs quantum dot point contact structures”, *Semicond. Sci. Technol.* 13, No. 8A, pp. A37-A40 (1998).
19. M.J. Rack, A.D. Gunther, M. Khoury, D. Vasileska, D.K. Ferry and M.V. Sidorov, “Compatibility of cobalt and chromium depletion gates with RPECVD gate oxide for silicon based nanostructures”, *Semicond. Sci. Technol.* 13, No. 8A, pp. A71-A74 (1998).
20. D. Vasileska, T. Eldridge, P. Bordone and D.K. Ferry, “Quantum transport simulation of the DOS function, self-consistent fields and mobility in MOS inversion layers”, *VLSI Design* 6, Nos. 1-4, pp. 21-25, 1998.
21. D. Vasileska, W.J. Gross, V. Kafedziski and D.K. Ferry, “Convergence properties of the Bi-CGSTAB method for the solution of the 3D Poisson and 3D electron current continuity equations for scaled Si MOSFETs,” *VLSI Design* 8, Nos. 1-4, pp. 301-305 (1998).
22. D.K. Ferry, R.A. Akis, D.P. Pivin, Jr., J.P. Bird, N. Holmberg, F. Badrieh, and D. Vasileska, "Quantum transport in ballistic quantum dots," *Physica E* 3, pp.137-144 (1998).
23. G. Formicone, D. Vasileska, D.K. Ferry, “2D Monte Carlo simulation of hole and electron transport in strained Si,” *VLSI Design*, Vol. 6, pp. 167-171 (1998).
24. D. Vasileska, G. Formicone and D.K. Ferry, "Doping dependence of the mobility enhancement in surface-channel strained-Si layers," *Nanotechnology* vol. 10, pp. 147-152 (1999).
25. D.K. Ferry, R. Akis, D. Vasileska, N. Holmberg, F. Badrieh, and J.P. Bird, "Theoretical considerations of electron transport in single and multiple quantum dots," *Jpn. J. Appl. Phys*. Vol. 38, pp. 303-307 (1999).
26. R. Akis, D. Vasileska, D.K. Ferry, and J.P. Bird, "Zero field magnetoresistance peaks in open quantum dots: Weak localization or a fundamental property?," *Jpn. J. Appl. Phys*. Vol. 38, pp. 328-331 (1999).
27. Y. Ochiai, L.-H. Lin, K. Ishibashi, Y. Aoyagi, T. Sugano, N.L. Holmberg, J.P. Bird, D. Vasileska, R. Akis, and D.K. Ferry, "Modeling of electron transport in corrugated quantum wires," *Jpn. J. Appl.* *Phys*. Vol. 38, pp. 325-327 (1999).
28. M. Dür, A.D. Gunther, D. Vasileska, and S.M. Goodnick, "Acoustic phonon scattering in Si quantum dots," *Nanotechnology* Vol. 10, pp. 142-146 (1999).
29. D. Vasileska, and D.K. Ferry, "The influence of poly-silicon gates on the threshold voltage, inversion layer and total gate capacitance in scaled Si-MOSFETs," *Nanotechnology* Vol. 10, pp.192-197 (1999).
30. R. Akis, D. K. Ferry, J. P. Bird and D. Vasileska, "Weak localization in ballistic quantum dots," *Phys. Rev. B* 60, pp. 2680-2690 (1999).
31. R. Akis, D. Vasileska, D. K. Ferry and J. P. Bird, "Zero-field magnetoresistance peaks in open quantum dots: weak localization or a fundamental property?," *J. Phys.: Condens. Matter* Vol. 11, pp. 4657-4664 (1999).
32. M.J. Rack, L. L. Hilt, D. Vasileska and D. K. Ferry, "Remote plasma enhanced chemical vapor deposition SiO2 in silicon based nanostructures," *J. Vac. Sci. Technol. B* Vol 17, No. 4, pp. 1840-1847 (1999).
33. D. P. Pivin, Jr., R. Akis, A. Andersen, J.P. Bird, D. Vasileska, and D.K. Ferry, "Weakly open quantum dots: Magnetotransport spectroscopy and zero-field resistance peaks," *Microelectronics Engineering* Vol. 47, pp. 89-93 (1999).
34. N. L. Holmberg, D. Vasileska, R. Akis, Y. Ochiai and D. K. Ferry, “Backscattering of electrons in a periodically corrugated quantum wire modeled with a self-consistent potential*," Microelectronic Engineering*, Vol. 47, pp. 151-153 (1999).
35. L.-H Lin, Y. Ochiai, K. Ishibashi, Y. Aoyagi, T. Sugano, J. P. Bird, N. Holmberg, D. Vasileska, R. Akis and D. K. Ferry, “Focused multi-peaks in gated ballistic wires," *Microelectronic Engineering*, Vol. 47, pp. 155-157 (1999).
36. W. J. Gross, D. Vasileska and D. K. Ferry, "A Novel Approach for Introducing the Electron-Electron and Electron-Impurity Interactions in Particle-Based Simulations," *IEEE Electron Device Lett.* 20, No. 9, pp.463-465 (1999).
37. J.P. Bird, R. Akis, D.K. Ferry, D. Vasileska, J. Cooper, Y. Aoyagi, and T. Sugano, "Lead orientation dependent wavefunction scarring in open quantum dots," *Phys. Rev. Lett*. 82, No. 23, pp. 4691-4694 (1999).
38. F. Assad, Z. Ren, D. Vasileska, S. Datta, and M. Lundstrom, "On the performance limits for Si MOSFET's: A theoretical study," *IEEE Trans. Electron Dev*ices, Vol. 47, No. 1, pp. 232-240 (2000).
39. W. J. Gross, D. Vasileska and D. K. Ferry, "3D Simulations of Ultra-Small MOSFETs with Real-Space Treatment of the Electron-Electron and Electron-Ion Interactions," *VLSI Design*, Vol. 10, pp. 437-452 (2000).
40. D. Vasileska, W. J. Gross, and D. K. Ferry, "Monte-Carlo particle-based simulations of deep-submicron n-MOSFETs with real-space treatment of electron-electron and electron-impurity interactions," *Superlattices and Microstructures*, Vol. 27, No. 2/3, pp. 147-157 (2000).
41. A. Gunther, M. Khoury, S. Miličić, D. Vasileska, T. Thornton, and S. M. Goodnick, "Transport in split-gate silicon quantum dots," *Superlattices and Microstructures*, Vol. 27, pp. 373-376 (2000).
42. S. N. Miličić, F. Badrieh, D. Vasileska, A. Gunther, and S. M. Goodnick, "3D Modeling of Silicon Quantum Dots," *Superlattices and Microstructures*, Vol. 27, No. 5/6, pp. 377-382 (2000).
43. R. Akis, J. P. Bird, D. K. Ferry, D. Vasileska, J. Cooper, Y. Aoyagi and T. Sugano, “Selecting Wavefunction States in Open Quantum Dots,” *Physica E*, Vol. 7, pp. 740-744 (2000).
44. L.-H. Lin, N. Aoki, K. Nakao, K. Ishibashi, Y. Aoyagi, T. Sugano, N. Holmberg, D. Vasileska, R. Akis, J. P. Bird, D. K. Ferry, and Y. Ochiai, "Magneto-transport in corrugated quantum wires," *Physica E*, Vol. 7, pp. 750-755 (2000).
45. R. Akis, J. P. Bird, D. K. Ferry, and D. Vasileska, “Nonuniform Energy Level Broadening in Open Quantum Dots: the Influence of the Closed Dot Eigenstates on Transport”, *Physica E*, Vol. 7, pp. 745-749 (2000).
46. W. J. Gross, D. Vasileska and D. K. Ferry, "Ultra-small MOSFETs: The importance of the full Coulomb interaction on device characteristics," *IEEE Trans. Electron Devices*, Vol. 47, No. 10, pp. 1831-1837 (2000).
47. M. Khoury, A. Gunther, S. Miličić, M. J. Rack, S. M. Goodnick, D. Vasileska, T. J. Thornton, and D. K. Ferry, "Single-electron quantum dots in silicon MOS structures," *Applied Physics* *A*, vol. 71, pp. 415-421 (2000).
48. S. N. Miličić, R. Akis, D. Vasileska, A. Gunther and S. M. Goodnick, “3D Modeling of Discrete Impurity Effects in Silicon Quantum Dots: Energy Level Spacing and Scarring Effects”, *Superlattices and Microstructures*, Vol. 28, No. 5/6, pp. 461-467 (2000).
49. R. Akis, L. Shifren, D. K. Ferry and D. Vasileska, "The effective potential and its use in simulation," Phys. Stat. Sol. (b), Vol. 226, No. 1, pp. 1-8 (2001).
50. D. K. Ferry, D. Vasileska, and H. L. Grubin, "Quantum Transport in Semiconductor Devices," *Journal of High Speed Electronics and Systems*, Vol. 11, pp. 363-385 (2001).
51. J. Kang, X. He, D. Vasileska, and D.K. Schroder, "Optimization of FIBMOS through 2D Device Simulation," *VLSI Design*, Vol. 13, pp. 251-256 (2001).
52. W. J. Gross, D. Vasileska and D. K. Ferry, "Ultra-small MOSFETs: The importance of the full Coulomb interaction on device characteristics", *VLSI Design*, Vol. 13, pp. 75-78 (2001).
53. I. Knezevic, D. Vasileska, R. Akis, J. Kang, X. He and D. K. Schroder, ”Monte Carlo particle-based simulation of FIBMOS: impact of strong quantum confinement on device performance”, *Physica B* Vol. 314, pp. 386-390 (2002).
54. I. Knezevic, D. Vasileska and D. K. Ferry, "Impact of strong quantum confinement on the performance of a highly asymmetric device structure: Monte Carlo particle-based simulation of a focused-ion-beam MOSFET", *IEEE Trans. Electron Devices*, Vol. 49, pp.1019-1026, 2002.
55. W. J. Gross, D. Vasileska and D. K. Ferry, "3D simulations of ultra-small MOSFETs: The role of the discrete impurities on the device terminal characteristics", *Journal of Applied Physics*, Vol. 91, pp. 3737-3740, 2002.
56. D. Vasileska, "The role of quantization effects on the operation of 50 nm MOSFET and 250 nm FIBMOS device", Phys. Stat. Sol. (b), Vol. 233, pp. 127-133 (2002).
57. D. Vasileska, R. Akis, I. Knezevic, S. N. Milicic, A. S. Ahmed and D. K. Ferry, "The role of quantization effects in the operation of ultrasmall MOSFETs and SOI devices", *Special Issue of Microelectronic Engineering*, Vol. 63, pp. 233-240 (2002).
58. I. Knezevic, D. Vasileska, X. He, D. K. Schroder and D. K. Ferry, "Low field mobility and quantum effects in asymmetric silicon-based field-effect devices", *Journal of Computational Electronics*, Vol. 1, pp. 273-277 (2002).
59. S. Gonzalez, D. Vasileska, and A. A. Demkov, "Empirical pseudopotential method for the band structure calculation of strained silicon germanium materials", *Journal of Computational Electronics*, Vol. 1, pp. 179-183 (2002).
60. G. Speyer, D. Vasileska and S. M. Goodnick, "Efficient Poisson solver for semiconductor device modeling using the multi-grid preconditioned BICGSTAB method", *Journal of Computational Electronics*, Vol. 1, pp. 359-363 (2002).
61. D. Vasileska, I. Knezevic, R. Akis, S. Ahmed and D. K. Ferry, "The role of quantization effects on the operation of 50 nm MOSFETs, 250 nm FIBMOS devices and narrow-width SOI device structures, *Journal of Computational Electronics*, Vol. 1, pp. 453-465 (2002).
62. G. F. Formicone, M. Saraniti, D. Z. Vasileska and D. K. Ferry, “Study of a 50-nm nMOSFET by Ensemble Monte Carlo including a new approach to surface roughness and impurity scattering in the Si inversion layer”, IEEE Trans. Electron Dev., Vol. 49, pp. 125-132 (2002).
63. R. Akis, D. Vasileska and D. K. Ferry, "Adiabatic switching in coupled quantum dot systems facilitated by the coexistence of molecular and atomic states", *Applied Physics Letters*, Vol. 80, 4440 (2002).
64. D. Vasileska, C. Prasad, H. H. Wieder and D. K. Ferry, “Green's Function Approach for Transport Calculation in a In0.53Ga0.47As/In0.52Al0.48As Modulation-Doped Heterostructure”, *J. Appl. Phys.* Vol. 93, pp. 3359-3363, (2003).
65. D. Vasileska, C. Prasad, H.H. Wieder and D. K. Ferry, “Green's Function Approach for Transport Calculation in a In0.53Ga0.47As/In0.52Al0.48As Modulation-Doped Heterostructure” *Phys. Stat. Sol. (b)*, Vol. 239, No.1, pp. 103-109 (2003).
66. C. Prasad, D. K. Ferry and D. Vasileska, “Electron-phonon interaction studies in an InAlAs/InGaAs/InAlAs quantum well structure”, *Physica E*, Vol. 19, pp. 215-220 (2003).
67. C. Gardner, C. Ringhofer and D. Vasileska, “Effective potentials and quantum fluid models based on thermodynamic principles”, *Int. J. High Speed Electronics* *and Systems*, Vol. 13, 771 (2003).
68. S. M. Goodnick, M. Saraniti, D. Vasileska and S. Aboud, “Particle-based methods in computational electronics”, *IEEE Potentials*, December 2003/January 2004, pp.12-17.
69. C. Ringhofer, S. Ahmed and D. Vasileska, “Effective potential approach to modeling of 25 nm MOSFET devices”, *Journal of Computational Electronics*, Vol. 2, pp. 113-117 (2003).
70. S. Krishnan and D. Vasileska, “Self-consistent subband structure and mobility of two dimensional holes in strained SiGe MOSFETs”, *Journal of Computational Electronics*, Vol. 2, pp. 443-448 (2003).
71. D. Vasileska, “Green’s function method for modeling InGaAs/InAlAs heterostructure materials”, *Journal of Vac. Sci. Technol. B*, Vol. 21, 1903 (2003).
72. C. Prasad, D. K. Ferry, D. Vasileska, and H. Wieder, “Electron heating measurements in an In0.52Al0.48As/In0.53Ga0.47As/In0.52Al0.48As heterotructure system”, *Journal of Vac. Sci. Technol. B*, Vol. 21, 1936 (2003).
73. S. S. Ahmed and D. Vasileska, “Threshold voltage shifts in narrow-width SOI devices due to quantum mechanical size-quantization effect”, *Physica E*, Vol. 19, pp. 48-52 (2003).
74. C. Ringhofer, S.S. Ahmed and D. Vasileska, “Effective potential approach to modeling of 25 nm MOSFET devices, *Superlattices and Microstructures*, Vol. 34, pp.311-317 (2003).
75. T. Khan, D. Vasileska and T. J. Thornton, “Quantum-mechanical tunneling phenomena in metal-semiconductor junctions”, *Superlattices and Microstructures*, Vol. 34, pp. 335-339 (2003).
76. A. Mannargudi and D. Vasileska, “Quantum confinements in highly asymmetric sub-micrometer device structures”, *Superlattices and Microstructures*, Vol. 34, pp. 347-354 (2003).
77. D. Mamaluy, D. Vasileska, M. Sabathil and P. Vogl, “Contact block reduction method and its application to a 25-nm MOSFET device”, *Semicond. Sci. Technol.,* Vol. 19, pp. S118-S121 (2004).
78. D. Vasileska and S. S. Ahmed, “Modeling of Narrow-Width SOI Devices”, *Semicond. Sci. Technol.*, Vol. 19, pp. S131-S133 (2004).
79. T. Khan, D. Vasileska and T.J. Thornton, “Treatment of interface-roughness in SOI-MESFETs”, *J. Vac. Sci. Technol. B*, Vol. 22, pp. 2110-2112 (2004).
80. D. Vasileska and S. S. Ahmed, “Narrow-Width SOI Devices: The Role of Quantum Mechanical Size Quantization Effect and the Unintentional Doping on the Device Operation”, *IEEE Transactions on Electron Devices*, Volume 52, Issue 2, Feb. 2005 Page(s):227 – 236.
81. T. Khan, D. Vasileska and T. J. Thornton, “Subthreshold Electron Mobility in SOI MOSFETs and MESFETs”, Subthreshold Electron Mobility in SOI MOSFETs and MESFETs”, Electron Devices, IEEE Transactions on, Volume 52, Issue 7, July 2005 Page(s):1622 – 1626.
82. S. Ahmed, C. Ringhofer and D. Vasileska, “Parameter-Free Effective Potential Method for Use in Particle-Based Simulations", *Nanotechnology, IEEE Transactions on, Volume 4, Issue 4,* July 2005 Page(s):465 – 471.
83. D. Mamaluy, D. Vasileska, M. Sabathil, T. Zibold, and P. Vogl, “Contact block reduction method for ballistic transport and carrier densities of open nanostructures”, Phys. Rev. B 71, 245321 (2005).
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14. D. Vasileska, H. R. Khan, S. S. Ahmed, G. Kannan and C. Ringhofer, “Quantum and Coulomb Effects in Nanodevices,”Nano-Electronic Devices: Semiclassical and Quantum Transport Modeling, pp. 97–182, Springer, Book Edited by D. Vasileska and S. M. Goodnick, 2011.
15. D. Vasileska, K. Raleva, B. Padmanabhan and S. M. Goodnick, Applications of Monte Carlo Method in Science and Engineering, Book edited by: Shaul Mordechai, ISBN: 978-953-307-691-1, Publisher: InTech, Vienna-Rijeka, Publishing date: February 2011
16. D. Vasileska, D. Mamaluy, I. Knezevic, H. R. Khan and S. M. Goodnick, Quantum Transport in Nanoscale Devices, Invited book chapter in *Encyclopedia of Nanoscience and Nanotechnology*, Edited by H. S. Nalwa, Volume 22, pp. 59-132 (2011).
17. D. Vasileska and S. K. Yoo, PN Junction Lab, ABACUS Toolkit (in press).
18. D. Vasileska and S. K. Yoo, Carrier Statistics Lab, ABACUS Toolkit (in press).
19. N. Ashraf, D. Vasileska, G. Wirth and S. Purushothaman, (Chapter 2) Comparative Analysis of Mobility and Dopant Number Fluctuation Models for the Threshold Voltage Fluctuation Estimation in 45 nm Channel Length MOSFET Device, in *Nanoelectronic Device Applications Handbook*, James Morris and Krzysztof Iniewski, CRC Press, June 18, 2013.
20. A. Hossain, D. Vasileska, K. Raleva and S. M. Goodnick, (Chapter 55) Interplay of Self-Heating and Short-Range Coulomb Interactions due to Traps in a 10 nm Channel Length Nanowire Transistor, in *Nanoelectronic Device Applications Handbook*, James Morris and Krzysztof Iniewski, CRC Press June 18, 2013.
21. S. Ahmed, M. Nedjalkov and D. Vasileska, “Comparative Study of Various Self-Consistent Event Biasing Schemes for Monte Carlo Simulations of Nanoscale MOSFETs”, in the book [*"Theory and Applications of Monte Carlo Simulations"*](http://www.intechopen.com/books/theory-and-applications-of-monte-carlo-simulations) edited by Victor (Wai Kin) Chan, ISBN 978-953-51-1012-5, InTech, March 3, 2013.
22. D. Vasileska and N. Ashraf, “Atomistic Simulations of Reliability”, in the book *Circuit Design for the Reliability*, Edited by Ricardo Reis, Gilson Wirth and Yu Chao, Springer ScienceCBusiness Media New York 2014, DOI 10.1007/978-1-4614-4078-9\_4, pp. 47-67 .
23. Katerina Raleva, Abdul Rawoof Shaik, Suleman Sami Qazi, Robin Daugherty, Akash Laturia, Ben Kaczer, Eric Bury and Dragica Vasileska, “Modeling Self-Heating Effects in Nanoscale Devices”, Pan Stanford Publishing, book entitled “NanoPhononics: Thermal Energy Generation, Transport, and Conversion at the Nanoscale”, Edited by Zlatan Aksamija, November 2017 (ISBN: 9781351609449) pp. 1-30.
24. Katerina Raleva, Abdul R. Shaik, Raghuraj Hathwar, Akash Laturia, Suleman S. Qazi, Robin Daugherty, Dragica Vasileska and Stephen M. Goodnick, “Monte Carlo Device Simulations”, in book entitled “Handbook of Optoelectronic Device Modeling and Simulation, Vol. 2”, Taylor & Francis Books (2017), Editor: Joachim Piprek, October 26, 2017 by CRC Press (ISBN: 9781498749381 - CAT# K27145) pp. ???
25. Da Guo, Daniel Brinkman, Abdul R. Shaik, I. Sankin, D. Krasikov, Christian Ringhofer and Dragica Vasileska, “Modeling Metastability in CdTe Solar cells due to Cu Migration”, Springer, Book Ed. by Roderick Melnik, in press (22 pages).

**PUBLICATIONS**

**Invited Presentations:**

1. "On the universality of electron mobility and degradation of the total gate capacitance in scaled Si MOSFETs," MIT Department of Electrical Engineering and Computer Science Special Seminar, March 26th, 1997.
2. "Universal mobility behavior in highly doped silicon inversion layers: The role of interface roughness," Motorola SPS, Tempe, AZ, April 1997.
3. "Green's functions formalism for the calculation of the low-field electron mobility in state-of-the-art devices," Intel, Santa Clara, CA, August 1997.
4. "Modeling of Deep-Submicrometer MOSFETs: Random impurity effects, threshold voltage shifts and gate capacitance attenuation," Sixth International Workshop on Computational Electronics, Osaka, Japan, October 19-21, 1998.
5. "Modeling of Deep-Submicrometer Devices," IEEE Waves and Devices Group, Phoenix Chapter, February 4th, 1999, Tempe, AZ.
6. "Discrete impurity effects in ultra-small devices of the future," Nanotransistors: Technology, Physics, and simulation, NIST Gaithersburg, February 8-9, 1999.
7. "Monte Carlo particle-based simulations of deep-submicron *n*-MOSFETs with real-space treatment of electron-electron and electron-impurity interactions," 3rd NASA Workshop on Device Modeling, Moffett Field, CA, August 26-27, 1999.
8. "Drift-diffusion modeling, particle-based simulations, discrete impurity effects and novel device technologies," 1999 Greater Phoenix Electronics Show-Technical Presentations Session, September 28-89, Phoenix, Arizona.
9. "Discrete impurity effects in ultra-small MOSFETs," Workshop on Computational Materials and Electronics, Motorola, November 4th, 1999.
10. "Scaling limits of devices and modeling," A Workshop on Challenges in Advanced Electronic Device Simulation, September 5th, 2000, Seattle, Washington.
11. "Prospects/Challenges in modeling of ultra-small MOSFETs, quantum dots and SETs," Workshop entitled: *Challenges in Advanced Electronic Device Simulation*, Seattle, September 5th, 2000.
12. "The influence of quantum-mechanical space-quantization effect on 50 nm MOSFET operation," *Second Annual Motorola Phoenix Workshop on Computational Materials Science and Electronics*, Tempe, November 9-10, 2000.
13. "Effective potentials for quantum effects in MOSFETs", *Maratea*, Italy, June 2001, presentation given by Richard Akis.
14. "Quantum corrections to classical simulators", *Motorola*, October 24th, 2001.
15. "The Role of the Quantization Effects on the Operation of Ultrasmall MOSFETs, FIBMOS Devices and the SOI Device Structure", *Motorola Workshop on Computational Materials and Electronics*, November 12-14, 2001, Mesa, Az.
16. "Empirical pseudopotential method for the band-structure calculation of strained-silicon germanium materials" (presented by Salvador Gonzalez), *Motorola Workshop on Computational Materials and Electronics*, November 12-14, 2001, Mesa, Az.
17. "The Role of the Quantization Effects on the Operation of Ultrasmall MOSFETs, FIBMOS Devices and the SOI Device Structure", December 3rd, 2001, invited talk for the *Phoenix Waves and Devices Chapter*.
18. "Inclusion of quantum effects into device simulators", IBM T. J. Watson, Yorktown Heights, NY, March 8th, 2002.
19. "An Effective Potential Method in Simulation of MOSFETs, FIBMOS and SOI Structure", Infineon, Germany, June 26th, 2002.
20. "Modeling of Deep-Submicrometer MOSFET’s: Random Impurity Effects, Threshold Voltage Shifts and On-State Current Degradation", Infineon, Germany, June 27th 2002.
21. "An Effective Potential Method in Simulation of MOSFETs, FIBMOS and SOI Structure", IEEE talk at the Department of Electrical Engineering, Skopje, Macedonia, July 3rd, 2002.
22. "Modeling of Deep-Submicrometer MOSFET’s: Random Impurity Effects,Threshold Voltage Shifts and On-State Current Degradation", IEEE talk at the Department of Electrical Engineering, Skopje, Macedonia, July 3rd, 2002.
23. “Green’s function method for modeling InGaAs/InAlAs heterostructure materials”, 4th Motorola Workshop on Computational Electronics, November 14-15, 2002, Tempe, Az.
24. “Discrete impurities and the effective potential”, Twenty-five years of Ultra-Small Electronics Research, November 29th, 2002, Hapuna Beach, Hawaii.
25. “Green’s function method for the subband structure and mobility calculation in InGaAs/InAlAs quantum wells”, Advanced heterostructure workshop, December 1-6, 2002, Hapuna Beach Prince Hotel, Hawaii.
26. “Simulation efforts at Arizona State University”, January 18th, 2003, University of Glasgow, UK.
27. “Device modeling”, July 17th, 2003, Technical University of Vienna, Vienna, Austria.
28. “Quantum effects in narrow-width SOI devices”, *14th Workshop on Modeling and Simulation of Electron Devices*, 16-17 October, Barcelona, Spain, 2003.
29. “CBR method for modeling nanoscale devices”, *Workshop on Quantum and Many-Body Effects in Nanoscale Devices*, October 24-25, 2003, Arizona State University, Tempe, AZ.
30. “Surface roughness effects in nanoscale devices”, *Workshop on Quantum and Many-Body Effects in Nanoscale Devices*, October 24-25, 2003, Arizona State University, Tempe, AZ.
31. “Discrete impurity effects in narrow-width SOI devices”, *5th Workshop on Computational Materials and Electronics*, November 13-14, 2003, Motorola Inc., Austin, TX.
32. “Quantum and Discrete Impurity Effects in Nanoscale Devices”, Purdue University, July 15th, 2004.
33. “SOI Devices: The Influence of Quantum Effects and Unintentional Doping on the Device Operation”, *Transport Phenomena in Micro and Nanodevices*, 17-21 October, 2004, Ohana Keauhou Beach Resort, Kona Coast, Island of Hawaii.
34. “Ballistic Quantum Transport Simulations in Nano-Devices Using the Contact Block Reduction Method”, presented by Denis Mamaluy, *Transport Phenomena in Micro and Nanodevices*, 17-21 October, 2004, Ohana Keauhou Beach Resort, Kona Coast, Island of Hawaii.
35. D. Mamaluy, D. Vasileska, M. Sabathil and P. Vogl, “Self-Consistent Contact Block Reduction Method for Ballistic Nanodevices”, *IEEE IWCE-10*, Purdue University, West Lafayette, IN, October 24-27, 2004.
36. D. Vasileska, “Fast multipole method in Nanodevices”, Purdue University, July, 2005.
37. D. Vasileska, “Computational Efforts at Arizona State University”, September 2005, TU Vienna, Austria.
38. D. Vasileska, “Computational Electronics”, University of Wisconsin, Madison, February 2006.
39. D. Vasileska, “Proper Inclusion of Coulomb Scattering When Examining Device Parameters Fluctuations due to Discrete Impurities and/or Unintentional Dopants”, ICCE-14, Boulder, July 2 -8, 2006.
40. D. Mamaluy, D. Vasileska, H.R. Khan, “Self-consistent treatment of quantum transport in nanoscale FinFET devices using CBR method”, Second International Conference on Transport Phenomena in Micro and Nanodevices”, 11-15 June, 2006, Il Ciocco Hotel and Conference Center, Barga, Italy.
41. D. Vasileska, “First Self-Consistent Full-Band–2D Monte Carlo–2D Poisson Device Solver for Modeling SiGe p-Channel Devices”, Monte Carlo Symposium, Borowets, August 22-26, 2006.
42. Dragica Vasileska and Santosh Krishnan, “Device Simulation of SiGe p-channel devices that takes into account size- quantization and band-structure effects”, Advanced Heterostructure Workshop, Hapuna Beach, HI, December 2006.
43. D. Mamaluy, H. Khan, Dragica Vasileska, “Investigating effects of source-drain tunneling in nano-scale FinFETs”, Advanced Heterostructure Workshop, Hapuna Beach, HI, December 2006.
44. D. Vasileska, “From semi-classical to quantum transport modeling”, June 15th, 2007, Faculty of Electrical Engineering, Skopje, Macedonia.
45. D. Vasileska, D. Mamaluy and H.R. Khan, “The Fastest 3D NEGF Solver: The Contact Block Reduction Method and its Application to Real Devices Modeling of the Presence and of the Future”, Physics-Based Mathematical Models of Low-Dimensional Semiconductor Nanostructures: Analysis and Computation, Banff, Canada, November 18-23, 2007.
46. Computational Electronics, June 14th 2008, University Sts. Cyril and Methodi, Skopje, Republic of Macedonia.
47. Computational Electronics and 21st Century Education, UC Berkeley, October 16, 2009.
48. Modeling Random Dopant Fluctuations and Random Telegraph Noise in Nanoscale Devices, invited presentation at the 1st IEEE CASS Summer School, Physical Design of Reliable Systems, January 12th to 15th, 2010, Porto Alegre, Brazil. Organizers G. Wirth (UFRGS) and Kevin (Yu) Cao (ASU).
49. Modeling GaN HEMTs, Army Research Laboratory, Adelphi, MD, March 18, 2010, Organizer, Tsvetanka Zheleva.
50. Balaji Padmanabhan and Dragica Vasileska, Modeling GaN HEMTs, ICCES 2010 Las Vegas, March 29th, 2010.
51. Nabil Ashraf and Dragica Vasileska, Modeling Random Dopant Fluctuations and Random Telegraph Noise Fluctuations in 45 nm channel length MOSFET devices, ICCES 2010 Las Vegas, March 29th, 2010.
52. Research within the COMPUTEL Group, University of Wisconsin, Madison, WI, June 24, 2010.
53. D. Vasileska, A. Hossain, K. Raleva and S. M. Goodnick, Is Self-Heating Important in Nanowire FETs?, NMA (Numerical Methods and Applications), Borovetz, August 20-24, 2010.
54. Research within the COMPUTEL Group, UFSC Florianopolis, Brazil, September 22nd, 2010.
55. Modeling of Quantum Dot Photodetectors, by invitation, 2010 NSF ECCS Grantee’s Conference.
56. Gerhard Klimeck, Dragica Vasileska, "Semiconductor Device and Quantum Mechanics Education on nanoHUB.org", ASEE IN/IL section meeting, Purdue University, April 9-10, 2010.
57. Walk-Through Through a Successful nanoHUB.org Use, Simulation-based Learning, A Workshop for Instructors using nanoHUB.org Resources, November 3-4, 2011, University of Texas Pan American, Edinburg, TX.
58. Nanoelectronics Today and in the Future, Faculty of Electrical and Information Theories, University Sts. Cyril and Methodius, Skopje, Republic of Macedonia, December 19th, 2011
59. Self-Heating Effects in SOI Devices and GaN HEMTs, Phonon School, May 21-22, 2012, Madison, WI.
60. “Modeling of GaN HEMTs”, Army Research Laboratory, Adelphi, MD, March 29th, 2013.
61. “Thermal effects in nanostructures” (tutorial), 18th Conference of "Insulating Films on Semiconductors", 25-28 June 2013, Cracow, Poland.
62. “Modeling Reliability of GaN HEMTs”, International Integrated Reliability Workshop, Lake Tahoe, October 13-17, 2013.
63. D. Vasileska, “Tool-Based Curricula for Nanotechnology Education”, in *Establishing Online Education Programs Workshop*, Tempe, AZ, Monday December 8th – Friday December 12th, 2014.

(Recipient of the Sun Award:

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1. Reliability Modeling of CdTe Photovoltaics, *MRS Spring Meeting*, April 6-10, 2015, San Francisco, CA, USA.
2. Reliability Modeling of CdTe Solar Cells, *Solar TR-3* in Ankara, Turkey, April 27-29, 2015.
3. Atomistic Monte Carlo Device Simulation of Random Telegraph Noise, *23rd International Conference on Noise and Fluctuations*, 2-5 June 2015, Xi’ian, China.
4. Modeling Self-Heating in Nanodevices, Intel, Hillsboro, OR, 12 June, 2015. Host: Roza Kotlyar.
5. Modeling Self-Heating in Nanoscale Devices, 15th International Conference on Nanotechnology (IEEE NANO), 27 - 30 July, 2015, Rome, Italy.
6. nanoHUB in Research, 2nd nanoHUB User’s Conference, August 31st to September 1st, 2015.
7. Rutgers University: “Metastable Behavior of CdTe Solar Cells due to Cu Migration”, November 11th, 2015.
8. (***by invitation - oral talk at WINDS Conference***) D. Vasileska and Da Guo, “Predictive Modeling of CdTe Solar Cells for Higher Efficiency and Larger Reliability”, 2016 Workshop on Innovative Nanoscale Devices and Systems (WINDS), December 4-December 9, Hapuna Beach Prince Hotel, Kohala Coast, Hawaii, USA.
9. (***keynote*** ***talk***) D. Vasileska and D. Guo, “Modeling Metastability and Reliability of CdTe Solar Cells”, *IEEE NANO 2016 Conference*, September 2016, Japan.
10. (***invited***) Dragica Vasileska, UNSW, March 9th, 2017. (65 attendees)
11. (***invited***) Dragica Vasileska, Igor Sankin, Da Guo, Daniel Brinkman, Christian Ringhofer, Andrew Moore, James Sites, “Metastability and Reliability of CdTe Solar Cells”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
12. (***invited***) Igor Sankin, Dmitry Krasikov, Andenet Alemu, Christian Ringhofer, Da Guo, Daniel Brinkman, Dragica Vasileska, Markus Gloeckler, “Comprehensive Solution for Defect Chemistry in II-VI Photovoltaics”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.

**INVITED PLENARY TALKS:**

1. D. Vasileska, “Nanotechnology: Yesterday, Today and Tomorrow”, *8th ETAI Conference*, Ohrid, Macedonia, 17-19, September, 2007.
2. D. Vasileska. “Thermal Effects in Nanoscale Devices”. Chip on the Dunes, August 31-September 2, 2009, Natal, Brazil.
3. D. Vasileska, “From Semiclassical to Quantum Transport Modeling”, ICT Inovations 2009, Ohrid, Macedonia, September 28-30, 2009.
4. K. Raleva, D. Vasileska and S. M. Goodnick, “Self-Heating Effects in High Performance Devices”, ICT Innovations 2010, Ohrid, Macedonia, September 15-18, 2010.
5. D. Vasileska, Basics in Nanotechnology, Confluenca, IIT Roorkee, March 12, 2011.
6. D. Vasileska, “Nanoelectronics and Modeling at the Nanoscale”, The 18th European Conference on Mathematics for Industry, Taormina, Italy, June 9-13, 2014.

## SHORT COURSES:

1. D. Vasileska, “From Semi-Classical to Quantum Transport Modeling”, *7th IEEE International Conference on Nanotechnology*, August 2-5, Hong Kong (2007).
2. D. Vasileska, “Computational Electronics: From Semiclassical to Quantum Transport Modeling”, *Chip on the Dunes*, August 31-September 2, 2009, Natal, Brazil.
3. D. Vasileska: Computational Electronics: From Semiclassical to Quantum Transport Modeling, PCO Global, Gold Coast Australia, February 2-4th, 2010.
4. D. Vasileska: *Computational Electronics:* *Semiclassical and Quantum Transport Modeling*, IEEE NMDC, Monterey, CA, October 12-15, 2010.
5. D. Vasileska, *Nanoelectronics and Modeling at the Nanoscale*, IEEE NANO, Portland, OR, August 15-18, 2011.
6. D. Vasileska, Computational Electronics, Fulbright Specialist Program, December 10, 2011-January 4th, 2012, Skopje, Republic of Macedonia.
7. Numerical Modeling of Semiconductor Devices, Workshop on Characterization and Modeling of Solar Cells, May 29-June 1st, 2012, Tempe, AZ, USA.
8. D. Vasileska, “Semiconductor Transport”, 30 hours lecture series at the Technical University of Vienna, Vienna, Austria in the period October 2nd until December 4th 2012.
9. D. Vasileska, “Computational Electronics”, 12 hour lecture series at the UFRGS, Porto Alegre, Brazil in the period of July 28th until August 8th, 2014. Total number of students 12 that took the class for credit.
10. D. Vasileska, Chengdu, China. 2 weeks (16 hours) course: “Semiconductor Transport”. Sichuan University organized 2 weeks summer course program called University Immerslon Program (UIP) from July 5th to July 18th, 2015.
11. D. Vasileska, “Computational Electronics”, 3 hour lecture at the UFRGS, Porto Alegre, Brazil on October 14th, 2015.
12. D. Vasileska,”Modeling Reliability of CdTe Photovoltaics”, DOE/NREL Hands-On PV Experience (HOPE), July 19-25, 2015.

**AWARDS:**

1. ***3rd Poster Place***: D. Vasileska (Arizona State University), A. Shaik, D. Guo, C. Ringhofer, D. Brinkman, D. Krasikov, I. Sankin, “Unified numerical solver for modeling metastability and reliability of CdTe solar cells”, *NREL/SNL/BNL PV Reliability Workshop*, February 28-March 2nd, 2017. Lakewood, Colorado.
2. **A. R. Shaik attended the HOPE Workshop in the Summer of 2017.**
3. ***Best Poster Presentation:*** Y. Fang, D. Vasileska and S.M. Goodnick, “TCAD Modeling of InGaN-Based High Temperature Photovoltaic Solar Cell”, presented at *IMAPS: 12th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 15-17, 2016.
4. **Da Guo attended the HOPE Workshop in the Summer of 2015.**
5. ***Best Poster Presentation*** at 2015 PVSC Conference:

D. Guo, R. Akis, D. Brinkman, A. Moore, T. Fang, I. Sankin, D. Vasileska, C. Ringhofer and J. Sites, “Cu Migration and its Impact on the Metastable Behavior of CdTe Solar Cells”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.

1. ***Best student oral presentation***: P. Muralidharan, D. Vasileska, S. M. Goodnick and S. Bowden, “A kinetic Monte Carlo approach to study transport in amorphous silicon”, *IMAPS: 11th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 17-19, 2015.
2. D. Vasileska, “Tool-Based Curricula for Nanotechnology Education”, in *Establishing Online Education Programs Workshop*, Tempe, AZ, Monday December 8th – Friday December 12th, 2014.

(***Recipient of the Sun Award:***

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1. ***Studend Best Poster Awards*** at the 2014 IMAPS Conference, Fountain Hills, AZ for the posters:
   1. **Cu Migration in Polycrystalline CdTe Solar Cells**  
      D. Guo, Arizona State University (R. Akis, D. Brinkman, D. Vasileska, Arizona State University; I. Sankin, T. Fang, First Solar)
   2. **Electrical and Thermal Transport in Alternative Device Technologies**  
      S. Qazi, Arizona State University (K. Raleva, University Sts Cyril and Methodius; D. Vasileska, Arizona State University)
2. ISDRS 2011 Conference: Best Student Oral Presentation Award, Devices: Balaji Padmanabhan, Dragica Vasileska, and Stephen Goodnick (Arizona State University), "Modeling Reliability of GaN/AlGaN/AlN/GaN HEMT".
3. Award from the 2004 LDSD conference for best poster.
4. Award from the 2004 LDSD conference for best paper.
5. **Recipient of the 1999 NSF Early CAREER Award. Project title*: "Computation as a means of understanding the operation of the devices of the future*." Amount awarded: $200,000.**
6. Award from the University “Cyril and Methodius” for ***the best student in the history***from the College of Engineering in 1985. (in 40 years).
7. Award from the University “Cyril and Methodius” for ***the best student* *in the history*** from the College of Engineering in 1990. (in 45 years).
8. Award from the College of Engineering, University “Cyril and Methodius” for *best achievements in one year*(1981, 1982, 1983, 1984, 1985).

[**Dragica Vasileska**](http://nanohub.org/members/9736)  [**http://nanohub.org/members/9736/usage**](http://nanohub.org/members/9736/usage)

Usage is calculated on the last day of every month. For more information on usage data, visit the [Usage Overview](http://nanohub.org/usage) page.

| **Item** | **Value** |
| --- | --- |
| **Contributions:** | 371 |
| **Total Simulation Users Served:** | 19,240 |
| **Rank by Contributions:** | 3 / 1457 |
| **First Contribution:** | 09 Mar 2005 |
| **Last Contribution:** | 14 Jun 2013 |
| **Citations on Contributions:** | 136 |
| **Usage in Courses/Classrooms:** | 6,912 users served in 448 courses from 47 institutions |

**Statistics updated 09/11/2014.**

**Tool Publication and Presentations in 2016 on nanoHUB.org**

[Cu in CdTe Lab (2D Version)](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=JIyfjwEAAAAJ&sortby=pubdate&citation_for_view=JIyfjwEAAAAJ:oi2SiIJ9l4AC)

AR Shaik, D Vasileska, D Guo, R Akis

[nanoHUB Used in Research: A One Developer/User View](https://scholar.google.com/citations?view_op=view_citation&hl=en&user=JIyfjwEAAAAJ&sortby=pubdate&citation_for_view=JIyfjwEAAAAJ:Dem6FJhTUoYC)

D Vasileska **PUBLICATIONS**

**National Conference Proceedings Refereed Papers:**

1. D. Vasileska, P. Bordone and D.K. Ferry, “Evaluation of the electron density of states in a Si-SiO2 interface using the zero-temperature Green’s functions formalism,” in *Proceedings of the Third International Workshop on Computational Electronics*, Portland, Oregon, May, 1994, pp. 175-178.
2. D.K. Ferry, J.-R. Zhou and D. Vasileska, “Modeling in the sub-0.07 micron gate length regime,” in *Proceedings of the Semiconductor Device Modeling Workshop*, NASA Ames Research Center, Moffett Field, California, March 1996, pp. 28-35.
3. D.K. Ferry, R. Akis, S. Udipi, D. Vasileska, D.P. Pivin, Jr., K.M. Connolly, and J.P. Bird, “Balistic quantum dots as a basis for novel semiconductor devices,” in *Proceedings of the 190th Electrochemical Society Meeting*, San Antonio, Texas, October 1996.
4. D.K. Ferry, R. Akis, S. Udipi, D. Vasileska, D.P. Pivin, Jr., K.M. Connolly, J.P. Bird, K. Ishibashi, Y. Aoyagi, T. Sugano and Y. Ochiai, “Carrier transport in nanoscale structures," *1996 International Solid-State Device and Materials Conference*, Yokohama, August 1996, pp. 749-51.
5. D.K. Ferry, R. Akis, D. Vasileska, J.P. Bird, and J.R. Barker, “Modeling quantum transport in semiconductor nanostructures,” in *Proceedings of The Second NASA Device Modeling Workshop*, NASA Ames Research Center, Moffett Field, California, August 1997, pp. 20-31.
6. Y. Ochiai, L.H. Lin, K. Yamamoto, K. Ishibashi, Y. Aoyagi, T. Sugano, D. Vasileska, R. Akis, J.P. Bird, and D.K. Ferry, “Electron stable orbits in quantum dots and wires,” in *Proceeding of the Quantum Functional Devices Symposium*, NIST Gaithersburg, November 1997 *(poster)*.
7. D. Vasileska, and D.K. Ferry, "The influence of space quantization effects on the threshold voltage, inversion layer and total gate capacitance in scaled Si-MOSFETs," in the *Technical Proceedings of the First International Conference on Modeling and Simulation of Microsystems, Semiconductors, Sensors and Actuators*, Santa Clara, California, April 6-8, 1998 *(oral presentation)*, 408-413.
8. D.K. Ferry, D. Vasileska, and G. Formicone, ‘Carrier transport and velocity overshoot in strained Si on SiGe heterostructures,’ in *Proceedings of the 1998 MRS Spring Meeting*, special symposium on *Epitaxy and Applications of si-Based Heterostructures*, San Francisco, California, April 12-15, 1998.
9. D.K. Ferry, R. Akis, J. P. Bird, D. P. Pivin, Jr., N. Holmberg, F. Badrieh, and D. Vasileska, “Modeling Quantum Transport in Semiconductor Nanostructures,” in *Proceedings of the Second International Workshop on Physics and Modeling of Devices Based upon Low-Dimensional Structures*, Ed. by V. Ryzhii, I. Khmyrova, and M. Willander (IEEE Computer Society Press, Los Alamitos, CA, 1998) pp. 54-61.
10. D. Vasileska, W.J. Gross and D.K. Ferry, "Modeling of Deep-Submicrometer MOSFETs: Random impurity effects, threshold voltage shifts and gate capacitance attenuation," *in Proceedings of the 1998 Sixth International Workshop on Computational Electronics*, pp. 259-262.
11. M. Dür, A.D. Gunther, D. Vasileska, and S.M. Goodnick, "Electron Relaxation in Silicon Quantum Dots by Acoustic Phonon Scattering,'' *in Proceedings of the 1998 Sixth International Workshop on Computational Electronics*, pp. 46-49.
12. R. Akis, D. Vasileska, and D.K. Ferry, "An overview of the 3D simulation efforts at Arizona State University-Understanding transport in quantum dots and the ultra-small devices of the future," in *Proceedings of the 2nd International Conference on Modeling and Simulation of Microsystems*, San Juan, Puerto Rico, April 19-21, 1999, pp. 384-387.
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117. P Muralidharan, S Bowden, S Goodnick and D. Vasileska, “Multiscale Modeling of Silicon Heterojunction Solar Cells”, Photovoltaic Specialists Conference (PVSC), 2016 IEEE 43rd, 3547-3551.
118. D. Guo and D. Vasileska, “Modeling of light soaking effect in CdTe Solar Cells”, In the *Proceedings of the 16th NUSOD Conference*, pp. 181-182, 2016. *Invited to present a BLOG as one of the 10 best papers in the conference.*
119. Y Fang, D Guo, A Fischer, S. M. Goodnick and D. Vasileska, “Drift-Diffusion InGaN/GaN Solar Cell Simulator with Optical Management, in Proceedings of the Photovoltaic Specialists Conference (PVSC), 2017 IEEE 44th,
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**PUBLICATIONS**

**National Conference Proceedings Reviewed Papers, Abstracts and Presentations:**

* D. Guo, “Cu Migration Durring Light-Soaking Experiments”, *WINDS*, November 26 - December 1, Kona Hawaii.
* D. Vasileska and G. Kannan, The Role of Interface Roughness on the Electron Mobility in Nanoscale Devices: A Green’s Function Approach”, *WINDS*, November 26 - December 1, Kona Hawaii.
* S. M. Goodnick, InGaN Multi-Quantum Well Solar Cells for High Temperature Applications, *WINDS*, November 26 - December 1, Kona Hawaii.
* D. K. Ferry and D. Vasileska, “Landauer and NEGF: Plain Talk on the Proper Approach”, *WINDS*, November 26 - December 1, Kona Hawaii.
* Y Fang, D Guo, A Fischer, S. M. Goodnick and D. Vasileska, “Drift-Diffusion InGaN/GaN Solar Cell Simulator with Optical Management”, *IEEE 44th Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25-30, 2017.
* M Leilaeioun, W Weigand, P Muralidharan, *et al* , “Contact resistance of the p-type amorphous silicon hole contact in silicon heterojunction solar cells*”, IEEE 44th Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25-30, 2017.
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* D Guo, A Moore, D Krasikov, I. Sankin3 and D. Vasileska, “A Comprehensive Study of Light Soaking Effect in CdTe Solar Cells*”, IEEE 44th Photovoltaic Specialists Conference (PVSC)*, Washington DC, June 25-30, 2017.
* D. Vasileska, A. Shaik, D. Guo, C. Ringhofer, D. Brinkman, D. Krasikov and I. Sankin, “Unified Numerical Solver for Modeling Metastability and Reliability of CdTe Solar Cells”, *International Workshop on Computational Nanotechnology (IWCN)*, 5-9 June 2017, Low Wood Hotel, Windermere, UK.
* P. Muralidharan, S. M. Goodnick and D. Vasileska, “Towards a Full Self - Consistently Coupled Drift Diffusion and Monte Carlo Simulator to Model Silicon Heterojunction Solar Cells, ”, *International Workshop on Computational Nanotechnology (IWCN)*, 5-9 June 2017, Low Wood Hotel, Windermere, UK.
* Alan Carlos Junior Rossetto, Vinicius Valduga de Almeida Camargo, Dragica Vasileska, Gilson Wirth, “Particle-Based Device Simulator for Modeling of Self-Heating Effects in P-Type MOSFET Transistors”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
* Yi Fang, Dragica Vasileska 1 , Stephen Goodnick, “Design and Modeling of InGaN-Based Concentrator Solar Cells under High Temperature”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
* Da Guo, Abdul Shaik and Dragica Vasileska, “Using Diffusion-Reaction Simulation to Study Light Soaking Effect in CdTe Solar Cells”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
* Abdul Shaik and Dragica Vasileska, “A Novel Phonon Monte Carlo Simulator for Calculating Thermal Conductivities”, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
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* P. Muralidharan, D. Vasileska and S. M. Goodnick, “Multiscale Modeling of Transport in Silicon Heterojunction Solar Cells”, *13th International Conference and Exhibition on Device Packaging (IMAPS)*, March 7-9, 2017, AZ.
* R. Daugherty and D. Vasileska, “Multi-Scale Modeling of Self Heating Effects on Power Consumption in Silicon CMOS Devices”, *13th International Conference and Exhibition on Device Packaging (IMAPS)*, March 7-9, 2017, AZ.
* ***3rd Poster Place***: D. Vasileska (Arizona State University), A. Shaik, D. Guo, C. Ringhofer, D. Brinkman, D. Krasikov, I. Sankin, “Unified numerical solver for modeling metastability and reliability of CdTe solar cells”, *NREL/SNL/BNL PV Reliability Workshop*, February 28-March 2nd, 2017. Lakewood, Colorado.
* P. Muralidharan, D. Vasileska and S. M. Goodnick, “Multiscale modeling of silicon heterojunction solar cells”, *NREL/SNL/BNL PV Reliability Workshop*, February 28-March 2nd, 2017. Lakewood, Colorado.
* Y. Fang, D. Guo, D. Vasileska and S. M. Goodnick, Drift-diffusion InGaN/GaN solar cell simulator with optical management “NREL/SNL/BNL PV Reliability Workshop, February 28-March 2nd, 2017. Lakewood, Colorado.
* (***by invitation oral talk at WINDS Conference***) D. Vasileska and Da Guo, “Predictive Modeling of CdTe Solar Cells for Higher Efficiency and Larger Reliability”, 2016 Workshop on Innovative Nanoscale Devices and Systems (WINDS), December 4-December 9, Hapuna Beach Prince Hotel, Kohala Coast, Hawaii, USA.
* D. Vasileska and D. Guo, “Understanding Self-Compensation Mechanism of Cu Doping in CdTe”, PVSEC 2016, 23-28 October, 2016, Singapore.
* Y. Fang, D. Vasileska and S. M. Goodnick, “Numerical simulation of InGaN-based high temperature concentrator solar cells, *International Workshop on Nitride Semiconductors*, October 2-7, Orlando, FL (2016).
* (***keynote*** ***talk***) D. Vasileska and D. Guo, “Modeling Metastability and Reliability of CdTe Solar Cells”, *IEEE NANO 2016 Conference*, September 2016, Japan.
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* R Akis, D Brinkman, D Guo et al., “A 2D diffusion-reaction CdTe solar cell simulator that includes active defects and grain boundaries”, presented at the *43rd PVSC*, June 4-10, 2016, Portland, OR.
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* Da Guo, Richard Akis, Daniel Brinkman, Dragica Vasileska, “Preditive Simulation of Defect Migration and Metastabilities in CdTe Solar Cells”, presented at the *2016 IEEE International Reliability Physics Symposium (IRPS)*, April 17-21, 2016, Pasadena, CA.
* Y. Fang, D. Vasileska and S. M. Goodnick, “Numerical simulation of InGaN-based high temperature concentrator solar cells”, presented at the *2016 MRS Spring Meeting & Exhibit*, March 28-April 1, 2016, Phoenix, AZ.
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* (**best poster award**) Y. Fang, D. Vasileska and S.M. Goodnick, “TCAD Modeling of InGaN-Based High Temperature Photovoltaic Solar Cell”, presented at *IMAPS: 12th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 15-17, 2016.
* Da Guo, Daniel Brinkman, Richard Akis, Dmitry Krasikov, Igor Sankin, Dragica Vasileska and Christian Ringhofer, “Numerical Simulation of Copper Migration in CdTe Solar Cells”, presented at *IMAPS: 12th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 15-17, 2016.
* Pradyumna Muralidharan, Stuart Bowden, Stephen M. Goodnick and Dragica Vasileska, “A Multiscale Modeling Approach to Study Transport in Silicon Heterojunction Solar Cells”, presented at *IMAPS: 12th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 15-17, 2016.
* A.R. Shaik, S. S. Qazi, R. L. Daugherty, A. Laturia, E. Bury, B. Kaczer, K. Raleva and D. Vasileska, “Multi-Scale Modeling of Self-Heating Effects in Silicon Nanoscale Devices”, presented at the International Symposium on Advanced Nanodevices and Nanotechnology, Nov. 29 - Dec. 4, 2015, Waikoloa, Hawaii.
* Da Guo, Richard Akis, Dragica Vasileska, Daniel Brinkman, Christian Ringhofer, Andrew Moore and Igor Sankin, “Modeling Reliability and Metastability of CdTe Photovoltaics”, presented at the International Symposium on Advanced Nanodevices and Nanotechnology, Nov. 29 - Dec. 4, 2015, Waikoloa, Hawaii.
* R. Daugherty, S. Qazi, A. Shaikh, Multi-scale method for analysis of self-heating in nano-electronic devices, presented at the *Annual Meeting of the APS Four Corners Section*, October 16–17, 2015, Tempe, AZ.
* D. Guo, D. Brinkman, R. Akis and D. Vasileska, “Understanding Cu migration in CdTe solar cells”, presented at the *Annual Meeting of the APS Four Corners Section*, October 16–17, 2015, Tempe, AZ.
* P. Muralidharan, S. Bowden, S. Goodnick and D. Vasileska, “A Monte Carlo approach to study transport in silicon heterojunction solar cells”, presented at the *Annual Meeting of the APS Four Corners Section*, October 16–17, 2015, Tempe, AZ.
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* P. Muralidharan, D. Vasileska, S. M. Goodnick and S. Bowden, “A Multi-Scale Modeling Approach to Study Transport in Silicon Heterojunction Solar Cells”, presented at *18th International Workshop on Computational Electronics*, Purdue University, West Lafayette, IN, September 2-4, 2015.
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* Aymeric Maros, Srikanth Gangam, Yi Fang, Justin Smith, Dragica Vasileska, Stephen Goodnick, Mariana I. Bertoni, and Christiana B. Honsberg, “High Temperature Characterization of GaAs Single Junction Solar Cells”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.
* R. Akis, D. Brinkman, D. Guo, D. Vasileska, and C. Ringhofer, “Simulating Cl Diffusion in Polycrystalline CdTe”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.
* (***Best poster***) D. Guo, R. Akis, D. Brinkman, A. Moore, T. Fang, I. Sankin, D. Vasileska, C. Ringhofer and J. Sites, “Cu Migration and its Impact on the Metastable Behavior of CdTe Solar Cells”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.
* Y. Fang, D. Vasileska, and S.M. Goodnick, “High temperature InGaN solar cell simulation”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.
* P. Muralidharan, D. Vasileska, S. M. Goodnick and S. Bowden, “A kinetic Monte Carlo approach to study transport in a-Si/c-Si HIT cells”, *42nd PVSC Conference*, New Orleans, LA, June 14th – 19th, 2015.
* P. Muralidharan, D. Vasileska, S. M. Goodnick and S. Bowden, “A kinetic Monte Carlo study of defect assisted transport in silicon heterojunction solar cells”, Presented at the *Solar TR-3* in Ankara, Turkey, April 27-29th, 2015.
* (***Best student oral presentation***) P. Muralidharan, D. Vasileska, S. M. Goodnick and S. Bowden, “A kinetic Monte Carlo approach to study transport in amorphous silicon”, *IMAPS: 11th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 17-19, 2015.
* Y. Fang, D. Vasileska, C. Honsberg and S. M. Goodnick, “High Temperature InGaN Solar Cell Modeling”, *IMAPS: 11th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 17-19, 2015.
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* Christiana Honsberg, Philip Gleckman, William A. Doolittle, Fernando Ponce, Chantal Arena, Dragica Vasileska, Srabanti Chowdry, Stephen M. Goodnick, "High Temperature InGaN Solar Cells for Hybrid PV/ CSP Systems", 2014 Optics and Photonics Conference, Canberra, Australia.
* (***best poster***) D. Guo, R. Akis, D. Brinkman, I. Sankin, T. Fang, D. Vasileska and C. Ringhofer, “Cu Migration in Polycrystalline CdTe Solar Cells”, *IMAPS: 10th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 11-13, 2014.
* (***best poster***) S. Qazi, K. Raleva and D. Vasileska, “Electrical and Thermal Transport in Alternative Device Technologies”, *IMAPS: 10th International Conference and Exhibition on Device Packaging*, Radisson Fort McDowell Resort and Casino Scottsdale/Fountain Hills, Arizona USA, March 11-13, 2014.
* Katerina Raleva, Erik Bury, Ben Kaczer, Dragica Vasileska, “Uncovering the temperature of the hotspot in nanoscale devices”, *IWCE 2014*, June 6-9th, 2014, Paris, France.
* P. Muralidharan, K. Ghosh, D. Vasileska and S. M. Goodnick, "Hot Hole Transport in a-Si/c-Si Heterojunction Solar Cells”, *40th IEEE Photovoltaic Specialists Conference*, June 8-13, 2014, Denver, CO.
* D. Guo, R. Akis, D. Brinkman, I. Sankin, T. Fang, D. Vasileska and C. Ringhofer, “One-Dimensional Reaction-Diffusion Simulation of Cu Migration in Polycrystalline CdTe Solar Cells”, *40th IEEE Photovoltaic Specialists Conference*, June 8-13, 2014, Denver, CO.
* R. Akis, D. Brinkman, I. Sankin, T. Fang, D. Guo, D. Vasileska, and C. Ringhofer, “Extracting Cu Diffusion Parameters in Polycrystalline CdTe”, *40th IEEE Photovoltaic Specialists Conference*, June 8-13, 2014, Denver, CO.
* Katerina Raleva, Erik Bury, Ben Kaczer, Dragica Vasileska, “Multi-Scale Modelling of Self-Heating Effects in Silicon Nanoscale MOSFETs”, *MNE - Micro and Nano Engineering Conference 2014*, Laussane, Switzerland, September 22-26, 2014.
* R. Akis, D. Brinkman, I. Sankin, T. Fang, D. Guo, D. Vasileska, and C. Ringhofer, “Modeling Copper Diffusion in Polycrystalline CdTe Solar Cells”, *IWCE 2014*, June 6-9th, 2014, Paris, France.
* D. Guo, R. Akis, D. Brinkman, I. Sankin, T. Fang, D. Vasileska and C. Ringhofer, “CdTe Solar Cells: The Role of Copper”, *IWCE 2014*, June 6-9th, 2014, Paris, France.
* E. Bury, B. Kaczer, P. J. Roussel, R. Ritzenthaler, K. Raleva, D. Vasileska, G. Groeseneken, “Experimental validation of self-heating simulations and projections for transistors in deeply scaled nodes”, June 1-5, 2014, Hilton Waikoloa Village, Waikoloa, HI, USA.
* D. Brinkman, C. Ringhofer, R. Akis, D. Guo, D. Vasileska, T. Fang and I. Sankin, “Grain Boundary Diffusion”, presented at the (IMA) Hot Topics Workshop: "Mathematics at the Interface of Partial Differential Equations, the Calculus of Variations, and Materials Science", Minneapolis, MN, May 21-23, 2014.
* D. Vasileska, I. Sankin, S. Wei, J. Sites and C. Ringhofer, “Unified Numerical Solver for Modeling Metastabilities in CdTe Photovoltaics“, *SunShot Grand Challenge Summit and Peer Review* *2014*, May 19-22, 2014 – Hilton, Anaheim, CA.
* Muralidharan, D. Vasileska and S. M. Goodnick, “Hot Hole Transport in a-Si/c-Si Hetero-junction Solar Cells”, *AZSEC: Arizona Student Energy Conference*, April 1-2, 2014, Memorial Un-ion, Arizona State University, Tempe, AZ.
* D. Guo and D. Vasileska, "One-Dimensional Reaction-Diffusion Simulation of Cu Migration in Polycrystalline CdTe Solar Cells", *AZSEC: Arizona Student Energy Conference*, April 1-2, 2014, Memorial Union, Arizona State University, Tempe, AZ.
* D. Vasileska, “Unified Numerical Solver for Device Metastabilities in CdTe Thin-Film PV”, SunShot Grand Challenge Summit, May 19-22, 2014, Hilton Anaheim in Anaheim, California.
* Vasileska and G. Klimeck, “Utilizing Visual Aspects of Tool-Based Curricula”, *nanoHUB Users Conference*, April 9-11, 2014, Phoenix, AZ.
* D. Vasileska, “Modeling of GaN HEMTs”, *ISANN 2013 International Symposium on Advanced Nanodevices and Nanotechnology*, Dec. 8-13th, 2013, Poipu Beach, Kauai, Hawaii
* B. Padmanabhan, D. Vasileska and S. M. Goodnick, “Reliability of GaN HEMTs”, *GOMACTEC Conference*, Las Vegas, March 10-14th, 2013.
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* B. Padmanabhan, D. Vasileska, and S.M. Goodnick, “Current Degradation of GaN HEMTs: Is Self-Heating Responsible?”, presented at the *SBMicro 2012*, Brazilia, Brazil.
* Gokula Kannan; Dragica Vasileska, Importance of the collisional broadening of the states across MOSFET technology generations, Technical Proceedings of the 2012 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2012. 2012: pp. 701-704, June 18-21, Santa Clara, CA.
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* P. Muralidharan, D. Vasileska, and Y. H. Zhang, “Modeling of InAs/GaSb Tunnel Junction”, presented at the *38th PVSC Conference*, Austin, TX June 3-8 (2012).
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* D. Vasileska, S. Joshi and N. S. Ashraf, Reliability Studies in 45 nm Technology node: Threshold Voltage Fluctuations due to Random Dopants and Random Telegraph Noise, in *Proceedings of the International Symposium on Advanced Nanodevices and Nanotechnology (ISANN)*, Kaanapali, Maui, December 4-9, 2011.
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* (poster) N. Ashraf and D. Vasileska, Modeling Fluctuations in the Threshold Voltage and ON-Current due to Random Telegraph Noise, Workshop on Emerging Device and Packaging Technologies, Friday, November 19th, ASU, Tempe, AZ, 2010.
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* (poster) B. Padmanabhan, A. Ashok, D. Vasileska and S. M. Goodnick, Modeling GaN HEMTs With AlN Spacer Layer, Workshop on Emerging Device and Packaging Technologies, Friday, November 19th, ASU, Tempe, AZ, 2010.
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* S. S. Ahmed, D. Vasileska and R. Akis, "Modeling of narrow-width SOI devices: The role of quantum mechanical narrow channel effects on device performance*", Second IEEE Conference on Nanotechnology*, Washington DC, August 26028, 2002.
* S. Ahmed, R. Akis and D. Vasileska, "Modeling of narrow-width SOI devices", *IEEE 2002 Silicon Nanoelectronics Workshop*, Honolulu, June 9-10, 2002.
* J. Yu, D. Vasileska, S. Goodnick, J. Grazul, M. Green, C. Y. Kim, K. Evans-Lutterodt, L. Liu, J. Lyding, W. Mansfield, D. Muller, T. Sorsch, R. Timp, and G. Timp, " The role of interface-roughness scattering in the effective mobility of an inversion layer*", IEEE 2002 Silicon Nanoelectronics Workshop*, Honolulu, June 9-10, 2002.
* S. S. Ahmed, R. Akis and D. Vasileska, "Quantum Effects in SOI devices", *4th International Conference on Modeling and Simulation of Microsystems*, San Juan, Puerto Rico, April 22-25, 2002.
* D. Vasileska, I. Knezevic, R. Akis and D. K. Ferry, "The role of quantization effects on the operation of 50 nm MOSFET and 250 nm FIBMOS device", *4th International Conference on Modeling and Simulation of Microsystems*, San Juan, Puerto Rico, April 22-25, 2002.
* D. Vasileska, R. Akis, I. Knezevic and D. K. Ferry, "The role of the quantization effects on the operation of ultra-small MOSFETs, FIBMOS devices and the SOI device structure", presented at the *Fifth International Symposium on New Phenomena in Mesoscopic Structures*, November 25-30, 2001, Waikoloa Beach, Hawaii.
* S. Gonzalez and D. Vasileska, "Empirical pseudopotential method for the band structure calculation of strained-silicon germanium materials", Arizona State University - Center for Solid State Electronics Research - Research Review, November 7th, 2001, Mesa, AZ.
* S. Gonzalez, D. Vasileska, and A. A. Demkov, "Empirical pseudopotential method for the band structure calculation of strained Si1-xGex materials", *IWCE-8*, Beckman Institute, University of Illinois at Urbana Champaign, October 15-17, 2001.
* G. Speyer and D. Vasileska, "Multi-grid and Bi-CGSTAB solvers for large 3D systems", *IWCE-8*, Beckman Institute, University of Illinois at Urbana Champaign, October 15-17, 2001.
* D. Vasileska, X. He, I. Knezevic and D. K. Schroder, "The role of quantum confinement on the operation of FIBMOS device", *IWCE-8*, Beckman Institute, University of Illinois at Urbana Champaign, October 15-17, 2001.
* Knezevic, D. Vasileska, R. Akis, J. Kang, X. He, and D. K. Schroder, "Monte Carlo particle-based simulation of FIBMOS: Impact of strong quantum confinement and asymmetric channel doping on device performance and hot carrier reliability", presented at the 12th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors (HCIS-12), Santa Fe, New Mexico, August 27-31, 2001.
* G. Speyer, D. Vasileska, and S. M. Goodnick, "Efficient Poisson equation solvers for large scale 3D simulations", *Proceedings of the 4th International Conference on Modeling and Simulation of Microsystems*, Hilton Head Island, SC, March 19-21, 2001.
* Knezevic, D. Vasileska, R. Akis, J. Kang, X. He, and D. K. Schroder, "Monte Carlo particle-based simulations of FIBMOS devices", presented at the *4th International Conference on Modeling and Simulation of Microsystems*, Hilton Head Island, SC, March 19-21, 2001.
* R. Akis, S. N. Milicic, D. K. Ferry, and D. Vasileska, "An effective potential method for including quantum effects into the simulation of ultra-short and ultra-narrow channel MOSFETs", presented at the *4th International Conference on Modeling and Simulation of Microsystems*, Hilton Head Island, SC, March 19-21, 2001.
* D. K. Ferry, R. Akis, and D. Vasileska, "Quantum effects in MOSFETs: Use of an effective potential in 3D Monte Carlo simulation of ultra-short channel devices," *2000 IEEE International Electron Devices Meeting*, San Francisco, CA, December 11-13, 2000.
* W. J. Gross, D. Vasileska and D. K. Ferry, "3D simulation of ultra-small MOSFETs: The role of discrete impurities on the device terminal characteristics", *7th International Workshop of Computational Electronics*, Glasgow, UK, May 21-25, 2000.
* W. J. Gross, D. Vasileska, and D. K. Ferry, "Ultra-small MOSFETs: The importance of the full Coulomb interaction on device characteristics", *7th International Workshop of Computational Electronics*, Glasgow, UK, May 21-25, 2000.
* J. Kang, X. He, D. Vasileska, and D. K. Schroder, "Optimization of FIBMOS through 2D Device Simulation," *7th International Workshop of Computational Electronics*, Glasgow, UK, May 21-25, 2000.
* S. Gonzalez, D. Vasileska, and A. A. Demkov, "Empirical pseudopotential method for the band structure calculation of strained Si1-xGex materials", APS March Meeting (12-16 of March), Seattle, 2000.
* R. Akis, L. Shifren, D. Vasileska, and D. K. Ferry, "The effective potential: Incorporating quantum effects in classical device modeling", *4th International Workshop on Quantum Functional Devices*, Kanazawa, Japan, November 15-17, 2000, pp. 119-120.
* S. N. Milićič, R. Akis, D. K. Ferry and D. Vasileska, "An effective potential method in simulation of SOI MOSFET structure," *Second Annual Motorola Phoenix Workshop on Computational Materials Science and Electronics*, Tempe, November 9-10, 2000. (*poster*).
* D. Vasileska, W. J. Gross and David K. Ferry, "Real-Space Treatment of Electron-Electron and Electron-Impurity Interactions in Monte Carlo Particle-Based Simulators," APS March Meeting, Atlanta, GA, March 1999.
* M.Dür, A.D. Gunther, D. Vasileska, and S.M. Goodnick, "Acoustic Phonon Scattering in Silicon Quantum Dots,'' *Third IEEE Silicon Nanoelectronics Workshop*, Honolulu, HI, June 7-8, 1998.
* *(invited)* D.K. Ferry, R.A. Akis, J.P. Bird, D.P. Pivin, Jr., N. Holberg, F. Badriah, and D. Vasileska, "Physics and modeling of quantum transport in ballistic dots," *1998 APS March Meeting*, Los Angeles, CA, March 16-20, 1998.
* *(invited)* D.K. Ferry, R.A. Akis, D.P. Pivin, Jr., J.P. Bird, N. Holmberg, F. Badrieh, and D. Vasileska, "Quantum transport in ballistic quantum dots," *10th International Winterschool on New Developments in Solid State Physics: New Frontiers in Low-Dimensional Physics*, Mauterndorf, Province of Salzburg, Austria, February 23-27, 1998.
* D. Vasileska, M.N. Wybourne, S.M. Goodnick, R. Akis, and D.K. Ferry, "3D simulation of GaAs/AlGaAs quantum dot point contact structures," *10th International Winterschool on New Developments in Solid State Physics: New Frontiers in Low-Dimensional Physics*, Mauterndorf, Province of Salzburg, Austria, February 23-27, 1998.
* D. Vasileska, P. Bordone, and D.K. Ferry, "Analytical calculation of the conductivity in low-dimensional systems using real-time Green's functions formalism," presented at the Workshop Surfaces and Interfaces in Mesoscopic Devices, Keauhou-Kona, Hawaii, April 1994.
* D. Vasileska, T. Dzekov, “Software support for optical resonator analysis,” *MANU* (Macedonian Academy of Arts and Sciences), December 1990, Skopje, Republic of Macedonia *(oral presentation)*.
* T. Dzekov, D. Vasileska, “Optical resonators with the opening in the output mirror,” *MANU* (Macedonian Academy of Arts and Sciences), December 1990, Skopje, Republic of Macedonia *(oral presentation)*.
* Goce Arsov, D. Vasileska, Josif Kosev, “Modeling, analysis and simulation of thyristor converters,” *Third Theme Symposium of ETAI*, Ohrid, Republic of Macedonia, 1989 *(oral presentation)*.

**PUBLICATIONS**

**Other Publications:**

1. “Detection and Correction of Errors in Digital Data Transmission,” D. Vasileska, Diploma Thesis, University "Cyril and Methodius," Skopje, Republic of Macedonia, May, 1985.
2. "Methods for the Evaluation of the Resonant Modes and Diffraction Losses in the Optical Resonators,” D. Vasileska, Master's Thesis, University "Cyril and Methodius," Skopje, Republic of Macedonia, January 1992.
3. "Green’s Functions Formalism for Low-Dimensional Systems,” D. Vasileska, Ph.D. Dissertation, Arizona State University, Tempe, Arizona, August 1995.

## RESEARCH GRANTS

## Sponsored Research - External Grants

## ONR MURI, "Nanoelectronics: Low power, high performance components and circuits", DWA0018, S. M. Goodnick, D. K. Ferry, J.P. Bird, M. Kozicki, D. Vasileska, T. Thornton, 4/30/98-4/29/03, $5,555,002 (total). (%REC=12.5, %RID=15, %IIA=15.)

## NSF "National Center for Computational Electronics", DWA0023, D. K. Ferry, S. M. Goodnick, D. Vasileska, 10/1/98-9/30/01, $260,000. (%REC=50, %RID=50, %IIA=50.)

## NSF CAREER: "Computation as a means of understanding the operation of future devices", DWA0034, D. Vasileska, 04/01/99-3/31/03, $200,000. (%REC=100, %RID=100, %IIA=100.)

## ONR "Modeling of future ultrasmall devices", DWA0026, D. Vasileska, 3/1/99-2/28/02, $300,000. (%REC=100, %RID=100, %IIA=100.)

## NSF (REU) "Modeling of GaAs MESFETs", DWA0036, D. Vasileska, 4/1/99-3/31/03, $5,000. (%REC=100, %RID=100, %IIA=100.)

## NSF "Full-band particle-based simulation for three-dimensional device structures", DWA0042, S. M. Goodnick, D. Vasileska, M. Saraniti, 9/1/99-8/31/02, $390,000. (%REC=33, %RID=33, %IIA=33.)

## SRC "Advanced device modeling and simulation", DWT0094, D. K. Ferry, S. M. Goodnick, D. Vasileska, 10/1/99-9/30/02, $159,315. (%REC=33, %RID=33, %IIA=33.)

## NSF (REU) "Development of the simulation hub for the CEM group, DWA0036, D. Vasileska, 04/01/99-3/31/03, $3,333. (%REC=100, %RID=100, %IIA=100.)

## ONR “Advanced modeling of alternate device technologies”, DWA0026, D. Vasileska, 03/01/02-05/31/05, $329,908. (%REC=100, %RID=100, %IIA=100.)

## ONR “Sub-Threshold silicon MESFETs with 25 nm gate lengths for ultra high speed/low power information processing”, T. J. Thornton, D. Vasileska, $642,281. (%REC=50, %RID=50, %IIA=50.)

## NSF “Modeling of p-channel Si1-xGex MOSFET devices and SOI device structures”, DWA0078, D. Vasileska, 10/01/02-9/30/05, $179,999. (%REC=100, %RID=100, %IIA=100.)

## NSF “Modeling of nano-scale MOSFETs”, DWA0081, D. Vasileska, C. Ringhofer, 08/01/02-07/31/05, $239,866. (%REC=50, %RID=50, %IIA=50.)

## NSF, “Spin manipulation in semiconductor nanostructures”, J. P. Bird, S. M. Goodnick, D. Vasileska, 8/15/02- 8/14/05, $599,072. (%REC=33, %RID=33, %IIA=33)

## ONR Addendum to DWA 0026: “Spin transport in nano-scale devices”, D. Vasileska, 08/16/02-08/15/05, $150,000. (%REC=100, %RID=100, %IIA=100.)

## ONR “3D Quantum Simulator for the Next Generation Devices”, D. Vasileska and D. Mamaluy, 10/01/05-9/30/08, $300,000. (%REC=100, %RID=100, %IIA=100.)

## NSF ECS: Collaborative Research: Quantum Simulator for Modeling Quantum Dot Photodetectors, Arizona State University, D. Vasileska, D. Mamaluy and G. Klimeck, 05/01/2007 - 04/30/2010, $165,000.00.

## Freescale: Modeling of GaN/AlGaN HEMTS Using Monte Carlo and including quantization, 01/01/2007-12/31/2007, $20,000.

## Arizona Institute for Nano-Electronics: Modeling Heating Effects in Nano-Scale Devices, Center for Computational Nanophotonics and Center for Computational Nanosciences, 01/01/2007-12/31/2007, $15,000.

## Freescale: Modeling of GaN/AlGaN HEMTs using Monte Carlo and including quantization and electron-electron interactions, 01/01/2008-12/31/2008, $10,000.

## HPC allocation proposal has been approved, and the HPC center at ASU will provide the full 150,000 hours for use of Saguaro to Professor Vasileska’s Group. This amounts to $25,000 grant.

## SFAZ-2007: Heterostructure Nanowire Simulation for Robust Manufacturing, D. Mamaluy and D. Vasileska, $133,099.00. Duration: 01/08/2008 – 31/07/2009.

## Army Research Lab, Modeling GaN HEMTs, D. Vasileska and G. Klimeck, seed funding $50,000, 2009-2010.

23. NSF ECS, “Modeling Heating Effects in Low-Power Multi-Gate SOI Devices and High-Power GaN HEMTs”, Dragica Vasileska and Stephen M. Goodnick, $306,185. Duration 06/01/2009-05/31/2012.

24. NSF REU: $6000 associated with grant NSF ECS: Collaborative Research: Quantum Simulator for Modeling Quantum Dot Photodetectors, Arizona State University, REU Project Title: Delivering PSPICE Examples on the nanoHUB. PI: Dragica Vasileska.

25. Army Research Lab, Modeling GaN HEMTs, D. Vasileska, seed funding $40,000, March 2011-July 2011.

26. HPC allocation proposal has been approved, and the HPC center at ASU will provide the full 140,000 hours for use of Saguaro to Professor Vasileska’s Group. This amounts to $25,000 grant.

27. NSF DOE: ERC – *Quantum Energy for Sustainable Solar Cell Technologies* (QESST), Director Christiana Honsberg, $25M, 01/01/2012 – 31/12/2022, 0.5 month summer support + one student support per year is my share.

28. First Solar, Modeling of CdS/CdTe solar cells, $45,435. PI: Dragica Vasileska. Time period: 04/01/2012 – 10/31/2012.

29. First Solar, Modeling of Point Defects and Grain Boundaries in CdS/CdTe solar cells, $174,299, PI: Dragica Vasileska. Time period: 05/01/2013-04/30/2015.

30. Department of Energy (DOE) PREDICTS, Unified numerical solver for device metastabilities in CdTe thin-film PV, 1.8 M, PI: Dragica Vasileska. 1.5 months support per year + support of 1 graduate student and 1 postdoc. Time period: 10/01/2013-9/30/2016.

31. DOE FOCUS - ARPA-e, High Temperature InGaN Thermionic Topping Cells, 3.8 M, PI Stephen Goodnick. My share: 0.5 month summer support + support of one graduate student. Time period: 06/15/2014 – 06/14/2017.

32. “Multi‐Scale Modeling of Si Heterojunction Solar Cells”, proposal awarded from QESST for Year 4 (2014). Total funds received: $43,500. Time period: August 1st, 2014 – July 31st, 2015.

33. “Multi‐Scale Modeling of Si Heterojunction Solar Cells”, proposal awarded from QESST for Year 5 (2015). Total funds received: $83,500. Time period: August 1st, 2015 – July 31st, 2016.

34. Department of Energy (DOE) PVRD, “Solution for Predictive Physical Modeling in CdTe and Other Thin-Film PV Technologies”, $900,000. PI: Dragica Vasileska. Time period: 11/01/2016-10/31-2018.

**STUDENT THESIS AND DISSERTATIONS SUPERVISED**

**Masters Theses Awarded**

* **Xiao Jiang He**, May 2000

"Two-Dimensional Monte Carlo Simulations of Ultra-Small MOSFETs"

Committee: D. Vasileska (Chair), S.M. Goodnick and D.K. Ferry

* **Srdjan Milicic**, May 2000

"3D Modeling of Silicon Quantum Dots"

Committee: D. Vasileska (Chair), S.M. Goodnick and D.K. Ferry

* **Gil Speyer**, May 2001

"Solving the Three-Dimensional Poisson Equation for Semiconductor Device Modeling Using Multigrid Preconditioned Conjugate Gradient Methods"

Committee: D. Vasileska (chair), S.M. Goodnick and D.K. Ferry

* **Salvador Gonzalez**, December 2001

"Empirical Pseudopotential method for the Band Structure Calculation of Strained Si1-xGex Materials"

Committee: D. Vasileska (chair), S.M. Goodnick and A. Demkov

* **Shaikh Shahid Ahmed**, December 2002

"Modeling of silicon on insulator devices"

Committee: D. Vasileska (chair), S.M. Goodnick and D.K. Ferry

* **Santhosh Krishnan**, December 2003

“Low field hole mobility in strained silicon-germanium pMOS devices”

Committee: D. Vasileska (chair), S.M. Goodnick and D.K. Ferry

* **Anand Mannargudi**, May 2004

“Investigation of deep submicrometer asymmetric device structure”

Committee: D. Vasileska (chair), D.K. Ferry and D.K. Schroder

* **Sumeet Kaur, August 2004**  
  ["Online Device Simulation Lab (ODSL) at Arizona State University"](http://www.eas.asu.edu/ee/students/thesis/documents/Kaur.pdf)  
  Committee: D. Vasileska (Chair), S.M. Goodnick, H. Cam
* **Ashwin Ashok, May 2005**  
  ["Spontaneous Spin Polarization in GaAs/AlxGa1-xAs Split-Gate Heterostructures"](http://www.eas.asu.edu/ee/students/thesis/documents/Ashok_000.pdf)  
  Committee: D. Vasileska (Chair), D.K. Ferry, S. Goodnick
* **Edwin Ramayya, December 2005**

"Modeling of Electron Mobility in a Rectangular Silicon Nanowire Transistor"

Committee: D. Vasileska (Chair), S. Goodnick, R. Akis

* **Prathibha Ramaprasad**, November 2006

“A Framework for Modeling Protein Ion Channels”

Committee: D. Vasileska (Chair), S. Goodnick and D. Mamaluy

* **Gordana Stojanovic**, May 2007

“Modeling GaAs/AlGaAs HEMTs”

Committee: D. Vasileska (Chair), S. Goodnick and O. Hartin (Freescale)

* **Balaji Padmanabhan**, November 2008

“3D Modeling of Solar Cells”

Committee: D. Vasileska (Chair), D. Schroder and D. Mamaluy

* **Gokula Kannan**, April 2010

“SCHRED Second Generation”

Committee: D. Vasileska (Chair), D. K. Schroder and S. M. Goodnick

* **Raghuraj Hathwar**, June 2011

“Generalized Monte Carlo Tool for Investigating Low-Field and High Field Properties of Materials Using Non-parabolic Band Structure Model”

Committee: D. Vasileska (Chair), M. Saraniti and S. M. Goodnick

* **Pradyumna Muralidharan**, July 2011

“1-D Modeling of HgCdTe Photodetectors Operated at Low Temperatures”

Committee: D. Vasileska (Chair), Y.-H. Zhang and P. Wijewarnasuriya (ARL)

* **Manan L. Gada,** January 2013

“Modeling of Self-Heating Effects in 25nm SOI Devices”

Committee: D. Vasileska (Chair), S. M. Goodnick and D. K. Ferry

* **Da Guo**, April 2013

“One-Dimensional Fast Transient Simulator for Modeling CdS/CdTe Solar Cells”

Committee: D. Vasileska (Chair), S. M. Goodnick and I. Sankin (First Solar)

* **Towhid Chowdhury, May 2013**  
  [“Study of Self-Heating Effects in GaN HEMTs”](http://ecee.engineering.asu.edu/wp-content/uploads/2012/07/Chowdhury_2013_MS_Study-of-Self-Heating-Effects.pdf)  
  Committee: Dr. Dragica Vasileska (chair), Dr. Stephen Goodnick, Dr. Michael Goryll
* **Suleman Sami Qazi**, November 2013

“Electrical and Thermal Transport in Alternative Device Technologies”

Committee: D. Vasileska (Chair), S. M. Goodnick (Co-chair) and M. Tao

* **Xinchen Guo**, April 2015, *School for Engineering of Mater, Transport and Energy*

“Algebraic Multigrid Poisson Equation Solver”

Committee: D. Vasileska (Chair), S. M. Goodnick and D. K. Ferry

* **Seung Kyung Yoo**, November 2015

“The Phonon Monte Carlo Simulation “

Committee: D. Vasileska (Chair), S. M. Goodnick and D. K. Ferry

* **Daniel Livingston**, November 2015, *Applied Project (Physics Department)*

“Modeling of Ge Transistors”

Committee: D. Vasileska (Chair), S. Lindsay, Jingyue Liu

* **Abdul Rawoof Shaik**, April 2016

“Multi-Scale study of Heat Transfer Using Monte Carlo Technique for Phonon Transport”

Committee: D. Vasileska (Chair), S. M. Goodnick and D. K. Ferry

* **Akash Anilkumar Laturia, December 2016**  
  Title: [Equilibrium Analysis of DG SOI MOSFET](http://ecee.engineering.asu.edu/wp-content/uploads/Equilibrium-Analysis-of-DG-SOI-MOSFET.doc)  
  Committee: Dr. Dragica Vasileska (Chair) Dr. Stephen Goodnick, Dr. David Ferry
* **Atreyo Mukherjee**, November 2017

A Study of Hole Transport in Amorphous Selenium Using Bulk Monte Carlo Techniques

Dragica Vasileska (co-chair), Amirhossein Goldan (co-chair), and Stephen Goodnick

* **Viswanathan Naveen Kumar**, November 2017

Mobility modeling of gallium nitride nanowire

Committee: Dragica Vasileska (chair), Yuji Zhao, and Stephen Goodnick

**Doctoral Thesis Awarded (12)**

* **Shaikh Shahid Ahmed,** December 2004

["Modeling Quantum and Coulomb Effects in Nanoscale Devices"](http://www.eas.asu.edu/ee/students/thesis/documents/Ahmed_000.pdf)   
Committee: D. Vasileska (Chair), D.K. Ferry, D.K. Schroder, C. Ringhofer, S. Goodnick

* **Santhosh Krishnan,** December 2005

["Band-Structure and Detailed Quantum Effects on Hole Transport In p-Channel MOSFETs"](http://www.eas.asu.edu/ee/students/thesis/documents/SanthoshKrishnan.doc)

Committee: D. Vasileska, M. V. Fischetti (Co-Chairs), D. Ferry, D. Schroder, S. Goodnick

* **Tarik Khan,** May 2006

[Modeling](http://www.eas.asu.edu/ee/students/thesis/documents/SanthoshKrishnan.doc) Si MESFETs

Committee: D. Vasileska, T. Thornton (Co-Chairs), D. Ferry, S. Goodnick, D. Schroder

* **Hasanur Rahman** **Khan** December 2007

“3D CBR Method for Modeling FinFET devices”

Committee: D. Vasileska (Chair), D. Mamaluy (Co-Chair), S.M. Goodnick, D.K. Ferry and D.K. Schroder

* **Katerina Raleva** June 2008

“Thermal Effects in Nanoscale FD-SOI Devices”

Graduated from UKIM, Skopje, Macedonia where D. Vasileska is Adjunct Professor.

* **Ashwin Ashok**, December 2008

Modeling of GaN HEMTs

Committee: D. Vasileska (Chair), O. Hartin, S. Goodnick, D. K. Ferry and D. Mamaluy

* **Arif Hossain**, May 2011

“Self-Heating Effects in Nanowire Transistors

Committee: D. Vasileska (Chair), S. Ahmed, S. Goodnick and B. Bakkaloglu

* **Nabil Ashraf**, November 2011

Comparative Analysis of Simulation of Trap Induced Threshold Voltage Fluctuations for 45 nm Gate Length n- MOSFET and Analytical Model Predictions

Committee: D. Vasileska (Chair), S. M. Goodnick, D. K. Schroder and M. Goryll

* **Balaji Padmanabhan**, April 2013

Modeling Reliability of Gallium Nitride High Electron Mobility Transistors

Committee: D. Vasileska (Chair), S. M. Goodnick, Terry L. Alford and Prasad Venkatraman

* **Da Guo**, October 2017

Modeling of Copper Migration in CdTe Photovoltaic Devices

Committee: Dragica Vasileska (chair), Mariana Bertoni, Stephen Goodnick, and Igor Sankin

* **Yi Fang**, November 2017, ***Physics***

Simulation of High Temperature InGaN Photovoltaic Devices

Committee: D. Vasileska (Chair), S. M. Goodnick (Co-chair), F. Ponce and R. Nemanich

* **Gokula Kannan Jayaram Thulasingam**, November 2017

The Role of the Collisional Broadening of the States ont he Low-Field Mobility in Silicon Inversion Layers

Committee: Dragica Vasileska (chair), David Allee, David Ferry, and Stephen Goodnick

**Current Graduate Projects in Progress**

|  |  |  |
| --- | --- | --- |
| **Student's Name** | **Degree** | **Project Title** |
| Pradyumna Muralidharan | Ph.D. | Modeling HIT Cells - QESST |
| Robin Daugherty | Ph.D. | Alternative Technology Devices (Electrical + Thermal Transport) |
| Suleman Qazi | Ph.D. | Alternative Technology Devices (Electrical + Thermal Transport) |
| Abdul Shaik | Ph.D. | Modeling CdS/CdTe Solar Cells for First Solar and DOE – Phase II |
| Chi-Yin Chen | Ph.D. | Full-Band Modeling of SiC Power Devices |
| Naveen Kumar | Ph.D. | Collisional Broadening of the States in GaN Nanowires |

**PROFESSIONAL AND SCIENTIFIC SERVICE**

**Scientific and Professional Society Memberships and Activities:**

* Institute of Electrical and Electronics Engineering (senior member, 1996-present).
* American Physical Society (member, 1993-present).
* Phi Kappa Phi (1994-present).
* Elected as a **Secretary of the Executive Committee** of the Phoenix Waves and Devices Chapter (that includes APS, EDS, LEOS, MTTS and UFFCS) for 1999.
* Elected as a **Chair of the Executive Committee** of the Phoenix Waves and Devices Chapter (that includes APS, EDS, LEOS, MTTS and UFFCS) for 2000.
* Member of the IEEE judging committee for IEEE sponsored award for *Future City Competition*, held on January 15th, 2000 in Civic Plaza Center in Phoenix, AZ.
* Served as **a Chair of the Executive Committee** of the Phoenix Waves and Devices Chapter (that includes APS, EDS, LEOS, MTTS and UFFCS) for part of 2001 (until April first).

**Conference Activities:**

* Session Chair on two technical sessions at the *Sixth International Workshop on Computational Electronics*, Osaka, Japan, October 19-21, 1998.
* Session Chair and organizer of the Special Session on *Modeling and Simulation of Quantum Devices and Systems* at the *Second International Conference on Modeling and Simulation of Microsystems*, San Juan, Puerto Rico, U.S.A., April 19-21, 1999.
* Program Committee member for the *Third International Conference on Modeling and Simulation of Microsystems*, San Diego, California, U.S.A., March 27-29, 2000.
* Program Committee member for the *2000 International Conference on Simulation of Semiconductor Processes and Devices*, Seattle, Sept. 6-8, 2000.
* Session Chair on one technical session at the *7th International Workshop on Computational Electronics*, Glasgow, UK, May 22-25, 2000.
* Panelist at the Workshop entitled: *Challenges in Advanced Electronic Device Simulation*, Seattle, September 5th, 2000.
* Session Chair at the *2000 International Conference on Simulation of Semiconductor Processes and Devices*, Seattle, Sept. 6-8, 2000.
* On the Organizing committee of the *12th International Conference on Nonequilibrium Carrier Dynamics in Semiconductors*, held in Santa Fe, New Mexico, U.S.A., August 27 to 31, 2001.
* Program Committee member for *IWCE-8* (*International Workshop on Computational Electronics*) held October 15-18, 2001 in the Beckman Institute, Urbana-Champaign, IL.
* Conference (program) committee member for the *ICCN-MSM 2002 Conference* held April 22-25, Marriott Resort, San Juan, Puerto Rico, USA.
* **Participated in the Summer School on Computational Material Science**: *Computational Approaches for Simulation of Devices and MEMS*, May 21-31, 2002, Beckman institute, University of Illinois, Urbana, Champaign. Held 8 hours lectures on Semiconductor device simulation.
* On the program committee for the MSM 2003 conference.
* On the program committee for the ICCN 2003 conference.
* Lecturer together with David K. Ferry at the Workshop entitled: **Introduction to Semiconductor Device Modeling with Monte Carlo**, 22-25th of July, 2003, Technical University at Ilmenau, Germany.
* **Organizer (together with Christian Ringhofer from the Math Department at ASU) of a workshop entitled “Quantum and many-body effects in nanoscale devices”, October 24-25, 2003, Tempe, AZ. The workshop was sponsored by Arizona State University, IRA A. Fulton School of Engineering.**
* Participated in the 2nd Women in Engineering Leadership Institute (**WELI**) Conference (**selected as a Fulton School of Engineering female representative from ASU**), Snowbird, Utah, November 5-8, 2003.
* On the program committee for the IWCE-10, 2004 Conference.
* On the **Editorial Board** of the **Journal of Applied Science**.
* On the program committee of the NSTI Nanotech 2004 conference.
* On the program Committee of the 2005 NSTI Nanotech Conference, May 8-12, 2005, Anaheim, CA.
* On the program committee of the “Fifth IMACS Seminar on Monte Carlo Methods”, May 16-20, 2005, Tallahassee, FL.
* Organizer of the Special Session on “Monte Carlo: Tools, Applications, Distributed Computing”, as part of the “5th International Conference on Large-Scale Scientific Computations”, June 6-10, 2005, Sozopol, Bulgaria.
* On the program Committee of the 2006 NSTI Nanotech Conference, May 7-11, 2006, Boston, MA.
* **Editorial Board Member** of the Journal of Computational and Theoretical Nanoscience, starting 2006 (see invitation attached).
* On the program Committee of the 2007 NSTI Nanotech Conference, May 20-24, 2007, Santa Clara, CA.
* On the program Committee of the 2007 ETAI conference.
* Moderator of a special topic session at the meeting Physics-Based Mathematical Models of Low-Dimensional Semiconductor Nanostructures: Analysis and Computation, Banff, Canada, November 18-23, 2007.
* On the program Committee of the 2008 NSTI Nanotech Conference.
* On the program Committee of the 2009 NSTI Nanotech Conference.
* On the program Committee of the 14th International Power Electronics and Motion Control Conference - EPE-PEMC 2010, Ohrid, Republic of Macedonia.
* On the advisory board of the International Journal of Energy Optimization and Engineering since 2010.
* On the Program Committee of the 2010 NSTI Nanotech Conference.
* Organizer of a mini-symposium entitled: From Semiclassical to Quantum Transport Modeling, in conjunction with the ICCES 2010 Conference, March 29th 2010, Las Vegas, Nevada.
* Representative from ASU to FIPSE Meeting in Florianopolis, Brazil, September 22-24, 2010.
* Session Chair at IEEE NMDC, October 12-15, 2010, Monterey, CA.
* On the program Committee of the 2011 NSTI Nanotech Conference.
* Session chair at the IEEE Nano 2011: August 15-19, Portland, OR.
* **Co-Chair of the 2012 SBMicro Conference, Brazilia, Brazil.**
* **Editorial Board Member** of the Journal of Computational Electronics since 2012.
* **Editorial Board Member** of the Nanoscale Systems: Mathematical Modeling, Theory and Applications since 2012.
* On the program Committee of the 2012, 2013, and 2014 NSTI Nanotech Conference.
* Session chair at the 2014 IWCE Conference, Paris, France.
* Minisymposium organizer at the The 18th European Conference on Mathematics for Industry Taormina, Italy, June 9-13, 2014. Minisymposium title: *Selected topics in semiclassical and quantum transport modeling*. (10 participants)
* Panelist in DOE SunShot Workshop, *Mechanistic Approach to Degradation and Life-time Prediction in PV*, Golden CO, 9th of September, 2014 (Colorado School of Mines).
* Graduate Research Fellowship Program Panelist for 2014.
* 2014 IWCE Program Committee Member.
* NanoTech 2014 Organizing Committee Member and Reviewer.
* Journal of Computational Electronics Editorial Board Member.
* Session chair IWCE and WINDS Conferences
* On the **Organizing Committee** of the 2015 IMAPS Device Packaging Conference (Fountain Hills, AZ, March 16-19, 2015).
* Session Chair, MRS Spring Meeting, April 6-10, 2015, San Francisco, CA, USA.
* Organizing Committee Member of 2015 IWCE Conference.
* On the Technical Committee of the *2016 International Electron Device Meeting (IEDM)*, December 3-7 2016, San Francisco, CA.
* Session Chair, *2017 MRS Spring Meeting*, Pnoenix, AZ. April 17th-21st, 2017.
* On the Technical Committee of the *2017 International Electron Device Meeting (IEDM)*, December 2-7 2017, San Francisco, CA.
* Organizing Committee Member of the 2017 IWCN Conference.
* On the **Organizing Committee** of the 2017 IMAPS Device Packaging Conference (Fountain Hills, AZ, 2017.
* Session Chair, IWCN 2017, 5-9 June 2017, Low Wood Hotel, Windermere, UK.
* Session Chair at the IEEE 44th Photovoltaic Specialists Conference (PVSC), Washington DC, June 25-30, 2017.
* Session Chair, IEEE IEDM, December 2-7 2017, San Francisco, CA
* Journal of Computational Electronics Editorial Board Member for 2017.

**Journal Referee Service:**

* IEEE Transactions on Electron Devices, Solid-State Electronics, Physical Review B, Physical Review Letters, Journal of Applied Physics, Physica B, VLSI Design, Journal of Vacuum Science and Technology, IEEE Electron Device Letters, TCAD, Transactions on Nanotechnology, International Journal of Nanoscience, Journal of Computational Electronics, Journal of Photovoltaics

**Proposal Reviewer Service:**

* National Science Foundation - Computational Engineering/Division of Electrical & Communications.

**NSF (Others) Panel Service:**

* Review panel for unsolicited proposals submitted to the Electronics, Photonics and Device Technologies (EPDT), held January 24-25, 2002 (Rajinder Khosla).
* Served as a NSF panelist for the NSF Graduate Research Fellowship Program, February 14th-16th, 2002.
* Served as a NSF panelist for the NSF Graduate Research Fellowship Program, March 4th–8th, 2003.
* Served as a NSF panelist for the NSF Graduate Research Fellowship Program, March 4th–8th, 2004.
* Reviewer of an NSF proposal ,2005.
* Reviewer of an NSF proposal, 2005.
* U.S. Civilian Research & Development Foundation, Proposal # 15349. Date submitted: 4/16/06 7:03:11 PM.
* Workshop on QMHP Computing, April 21-23, 2007, Washington DC, organized by Paul Werbos.
* NSF Panelist for a panel on Peta-Scale Applications, August 13-14, 2007.
* Served as a NSF panelist for the NSF Graduate Research Fellowship Program, January 31st - February 2nd, 2008.
* Served as a NSF panelist for the NSF Graduate Research Fellowship Program, February 4-7, 2009.
* Served on an NSF Panel organized by Program Director Majumdar, April 2009.
* Served on a DOE panel for SMART Scholarship 2011.
* Served as a panelist for the NSF Graduate Research Fellowship Program 2011.
* Served as a panelist for the NSF Graduate Research Fellowship Program 2012.
* Served as a panelist for the NSF Graduate Research Fellowship Program 2013.
* Served as a panelist for the NSF Graduate Research Fellowship Program 2014.
* Served as a panelist of the 2014 ORAU Postdoctoral Fellows Research Opportunities.
* Served on a DOE panel for SMART Scholarship 2015.
* Served on a DOE panel for PREDICTS – II Proposals 2015.
* Served on a DOE panel for SMART Scholarship 2016.

**ASU SERVICE:**

* D. Vasileska (D. Guo), “Diffusion-reaction modeling of cu migration in cdte solar devices“, presented at the ASU Center for Photonic Innovations Annual Review 2015, October 23, 2015.
* Seminar: “Modeling of Solar Cells”, QESST Summer Program, July 1st, 2015.
* Women in Engineering Luncheon to help recruit women for Fall 2013, February 17, 2013, 11:30-1:30 pm.
* Participated as a Poster Judge at the AzSEC - Arizona Student Energy Conference – Tucson, AZ, April 11-12th, 2013.

**GENERAL SERVICE**

* Served as an Evaluator of Alejandra Magana de Leon for promotion to Associate Professor with Tenure, Purdue University, Spring 2015.
* Served as an evaluator of Krishna Madhavan for promotion to Associate Professor with Tenure, Purdue University, Spring 2015.

**ARIZONA STATE UNIVERSITY COMMITTEE SERVICE**

**College:**

* Authorized form the Graduate College to serve as a chairperson of dissertation committees for the Ph.D. program in the Department of Electrical Engineering until August 2008.
* December 3rd, 1998: Participated in a seminar entitled "*Choosing a graduate program*," organized by the ASU's WISE (Women in Applied Science and Engineering) Program.
* Summer 1999: Created and conducted Electrical Engineering Labs for the TEAMS (middle school) and WISE-UP (high school) students as part of the WISE Summer program for attracting women in the Engineering disciplines.
* March 1st, 2000: Participated in a scholars meeting entitled "Undergraduates Choosing a Graduate Studies," which was organized by the WISE Center at ASU.
* Summer 2000: Conducted two Electrical Engineering Labs for the WISE-TEAMS program for attracting middle school female students in the Engineering disciplines.
* Summer 2001: Developed and conducted Electrical Engineering Lab for WISE-UP (high school students) and OSA Summer Institute.
* Summer 2002: Developed and conducted Electrical Engineering Lab for the Engineering Summer Institute. For this purpose, a total of six students were separated in two groups and introduced to SPICE simulator, digital logic and building an electric motor. I have spent total of six hours with the students.
* Year 2002-2003: Affirmative Action Representative for the CEAS and the Electrical Engineering Department.
* Summer 2004: Participated in the ASU WISE summer program by invitation.
* Summer 2005: Participated in the ASU WISE summer program by invitation.
* Middle and High School Program organized by Jan Snyder, June 2010, 2011.

**Department:**

* **Undergraduate Committee August 2003-present.**
* **Software Committee** (together with D. Tylavsky and D. Allee)
* **Solid State Area Committee**
* **Power Electronics Search Committee -** Affirmative action member (1999)
* **Working Group on Diversity in the Department of Electrical Engineering at ASU**
* **Solid State Electronics Search Committee (2005)**
* **Solid State Electronics Search Committee (2006)**
* **Masters and Ph.D. Defense Committees**
* **MSE Examination Committee (Solid State Area) (2012 - present)**