

# Mark A. Eriksson

Department of Physics  
University of Wisconsin-Madison  
Madison, WI 53706

Tel: (608) 263-6289  
Fax: (608) 265-2334  
email: maeriksson@wisc.edu

## Education

Harvard University

Ph.D. 1997

Dissertation Title: Cryogenic Scanning Probe Microscopy  
for Semiconductor Nanostructures

A.M. 1994

University of Wisconsin-Madison

B.S. with Honors in Physics and Mathematics, 1992

## Positions

2020-present	John Bardeen Professor of Physics Department of Physics, University of Wisconsin-Madison
2021-present	Chair, Department of Physics, University of Wisconsin-Madison
2016-2020	Vilas Distinguished Achievement Professor Department of Physics, University of Wisconsin-Madison
2015-2016	Visiting Scientist (Sabbatical: Sept. 2015-May 2016) Delft University of Technology
2007-2016	Professor, Department of Physics, University of Wisconsin-Madison
2008-2009	Professorial Visiting Fellow (Sabbatical: Sept. 2008-May 2009) School of Physics, Faculty of Science, University of New South Wales
2004-2007	Associate Professor Department of Physics, University of Wisconsin-Madison
1999-2004	Assistant Professor Department of Physics, University of Wisconsin-Madison
1997-1999	Postdoctoral Member of Technical Staff Bell Laboratories, Lucent Technologies
1996-1997	Teaching Fellow and Research Assistant, Harvard University
1995-1996	Harvard Merit Fellow, Harvard University
1994	Teaching Fellow, Harvard University
1992-1995	NSF Graduate Fellow, Harvard University

## Honors and Awards

WARF Named Professorship, University of Wisconsin-Madison (2020)

Vilas Associates Award, University of Wisconsin-Madison (2018)

Fellow, American Association for the Advancement of Science (2015)  
Kellett Mid-Career Award, University of Wisconsin-Madison (2013)  
Fellow, American Physical Society (2012)  
CAREER Award, National Science Foundation (2001-2006)  
Research Innovation Award, Research Corporation (2001)  
Goldhaber Prize, Harvard Physics (1995)  
Graduate Fellow, National Science Foundation (1992-95)  
Phi Beta Kappa (1991)

## Scientific Society Affiliations

APS, AAAS, MRS, AVS, and IEEE

## Highlights of Scholarly Activities

- 36 papers published in Physical Review X, Physical Review X-Quantum, Physical Review Letters, Nature, Nature Physics, Nature Materials, Nature Nanotechnology, Nature Communications, or PNAS.
- Co-author of an overview of semiconductor quantum computing in *Physics Today* [[click pdf for link to web](#)].
- Co-author of an invited review of silicon as a host for spin qubits published in *Nature* [[click pdf for link to web](#)].
- Co-author of a review of silicon quantum electronics published in *Reviews of Modern Physics* [[click pdf for link to web](#)].
- Organizer or co-organizer for four international workshops on silicon quantum electronics, one in 2007, one in 2011, one in 2016, and most recently the 2017 workshop held in Portland, Oregon, USA.
- Delivered over 160 invited presentations at conferences, colloquia, and seminars.
- Google scholar page link: [[click pdf for link to web](#)].

## Chapters of Books:

3. “Si/SiGe Quantum Devices, Quantum Wells, and Electron-Spin Coherence,” by J. L. Truitt, K. A. Slinker, K. L. M. Lewis, D. E. Savage, C. Tahan, L. J. Klein, R. Joynt, M. G. Lagally, D. W. van der Weide, S. N. Coppersmith, M. Friesen and M. A. Eriksson, in *Topics in Applied Physics, vol. 115: Electron Spin Resonance and Related Phenomena in Low-Dimensional Structures*, Ed. M. Fanciulli (Springer-Verlag, Berlin, 2009), p. 101.
2. “Chromic Transitions and Nanomechanical Properties of (Poly)diacetylene Molecular Films,” R.W. Carpick, A.R. Burns, D.Y. Sasaki, M. A. Eriksson, M.S. Marcus. In: *Chromogenic Phenomena in Polymers: Tunable Optical Properties*, Eds. D. Kiserow and S.A. Jenekhe (ACS Books) 2004.

1. L.L. Sohn, C.T. Black, M.A. Eriksson, M. Crommie, and H. Hess, "Scanning Probe Microscopes and their Applications," in *Mesoscopic Electron Transport*, NATO ASI Series E 345, ed. by L.L. Sohn, L.P. Kouwenhoven, and G. Schon (Kluwer, 1997).

## Journal Publications

136. "SiGe quantum wells with oscillating Ge concentrations for quantum dot qubits." T. McJunkin, B. Harpt, Y. Feng, M. Losert, Rajib Rahman, J. P. Dodson, M. Wolfe, D. E. Savage, M. G. Lagally, S. N. Coppersmith, Mark Friesen, Robert Joynt, and M. A. Eriksson, *submitted to Nat. Mater.*
135. "Toward Robust Autotuning of Noisy Quantum Dot Devices." J. Ziegler, T. McJunkin, E. S. Joseph, Sandesh S. Kalantre, B. Harpt, D. E. Savage, M. G. Lagally, M. A. Eriksson, Jacob M. Taylor, and Justyna P. Zwolak, *submitted to Phys. Rev. Applied*
134. "Long Phonon Mean Free Paths Observed in Cross-plane Thermal-Conductivity Measurements of Exfoliated Hexagonal Boron Nitride." G. R. Jaffe, Keenan J. Smith, K. Watanabe, T. Taniguchi, M. G. Lagally, M. A. Eriksson, and Victor W. Brar, *submitted to Phys. Rev. Applied*
133. "How valley-orbit states in silicon quantum dots probe quantum well interfaces." J. P. Dodson, H.E. Ercan, J. Corrigan, M. Losert, Nathan Holman, T. McJunkin, L. F. Edge, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *submitted to Phys. Rev. Lett.*
132. "A Simple Numerical Method for Evaluating Heat Dissipation from Wires in Arbitrary Shapes with Periodic Applied Heating." G. R. Jaffe, Victor W. Brar, M. G. Lagally, and M. A. Eriksson, *Appl. Phys. Lett.* **119**, 163501 (2021).
131. "Coherent control and spectroscopy of a semiconductor quantum dot Wigner molecule." J. Corrigan, J. P. Dodson, H.E. Ercan, J. C. Abadillo-Uriel, B. Thorgrimsson, T. J. Knapp, Nathan Holman, T. McJunkin, S. F. Neyens, E. R. MacQuarrie, R. H. Foote, L. F. Edge, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Phys. Rev. Lett.* **127**, 127701 (2021).
130. "Dispersive measurement of a semiconductor double quantum dot via 3D integration of a high-impedance TiN resonator." Nathan Holman, D. Rosenberg, D. Yost, J.L. Yoder, R. Das, W.D. Oliver, R. McDermott, and M. A. Eriksson, *npj Quant. Inf.* **7**, 137 (2021).
129. "Magnetic gradient free two axis control of a valley spin qubit in SiGe." Y.-Y. Liu, L.A. Orona, S. F. Neyens, E. R. MacQuarrie, M. A. Eriksson, and A. Yacoby, *Phys. Rev. Lett.* **16**, 024029 (2021).
128. "Valley splittings in Si/SiGe quantum dots with a germanium spike in the silicon well." T. McJunkin, E. R. MacQuarrie, L. Tom, S. F. Neyens, J. P. Dodson, B. Thorgrimsson, J. Corrigan, H.E. Ercan, D. E. Savage, M. G. Lagally, Robert Joynt, S. N. Coppersmith, Mark Friesen, and M. A. Eriksson, *Phys. Rev. B* **104**, 085406 (2021).

127. “Radio frequency reflectometry in silicon-based quantum dots.” Y.-Y. Liu, S. G. J. Philips, L.A. Orona, N. Samkharadze, T. McJunkin, E. R. MacQuarrie, M. A. Eriksson, L. M. K. Vandersypen, and A. Yacoby, *Phys. Rev. Applied* **16**, 014057 (2021).
126. “High-density covalent grafting of spin-active molecular moieties to diamond surfaces.” Benjamin Bachman, Z. Jones, G. R. Jaffe, J. Salman, R. A. Wambold, Zhaoning Yu, J. T. Choy, S. Kolkowitz, M. A. Eriksson, Mikhail Kats, and Robert J. Hamers, *Langmuir* **37**, 9222 (2021).
125. “Ray-Based Framework for State Identification in Quantum Dot Devices.” Justyna P. Zwolak, T. McJunkin, Sandesh S. Kalantre, S. F. Neyens, E. R. MacQuarrie, M. A. Eriksson, and Jacob M. Taylor, *PRX Quantum* **2**, 020335 (2021).
124. “Adjoint-optimized nanoscale light extractor for nitrogen-vacancy centers in diamond.” R. A. Wambold, Zhaoning Yu, Yuzhe Xiao, Benjamin Bachman, G. R. Jaffe, S. Kolkowitz, J. T. Choy, M. A. Eriksson, Robert J. Hamers, and Mikhail Kats, *Nanophotonics* **10**, 393 (2021).
123. “Fabrication process and failure analysis for robust quantum dots in silicon.” J. P. Dodson, Nathan Holman, B. Thorgrimsson, S. F. Neyens, E. R. MacQuarrie, T. McJunkin, R. H. Foote, L. F. Edge, S. N. Coppersmith, and M. A. Eriksson, *Nanotech.* **31**, 505001 (2020).
122. “Progress Towards a Capacitively Mediated CNOT Between Two Charge Qubits in Si/SiGe.” E. R. MacQuarrie, S. F. Neyens, J. P. Dodson, J. Corrigan, B. Thorgrimsson, Nathan Holman, M. Palma, L. F. Edge, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *npj Quant. Inf.* **6**, 81 (2020).
121. “Microwave Engineering for Semiconductor Quantum Dots in a cQED Architecture.” Nathan Holman, J. P. Dodson, L. F. Edge, S. N. Coppersmith, Mark Friesen, R. McDermott, and M. A. Eriksson, *Appl. Phys. Lett.* **117**, 083502 (2020).
120. “Three-Omega Thermal-Conductivity Measurements with Curved Heater Geometries.” G. R. Jaffe, Keenan J. Smith, Victor W. Brar, M. G. Lagally, and M. A. Eriksson, *Appl. Phys. Lett.* **117**, 073102 (2020).
119. “Spatial Noise Correlations in a Si/SiGe Two-Qubit Device from Bell State Coherences.” Jelmer M. Boter, X. Xue, Tobias S. Krahenmann, T. F. Watson, Vickram N. Premakumar, D. R. Ward, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, Robert Joynt, and L. M. K. Vandersypen, *Phys. Rev. B* **101**, 235133 (2020).
118. “The effect of external electric fields on silicon with superconducting gallium nano-precipitates.” B. Thorgrimsson, T. McJunkin, E. R. MacQuarrie, S. N. Coppersmith, and M. A. Eriksson, *J. Appl. Phys.* **127**, 215102 (2020).
117. “Repetitive quantum non-demolition measurement and soft decoding of a silicon spin qubit.” X. Xue, Benjamin D’Anjou, T. F. Watson, D. R. Ward, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, William A. Coish, and L. M. K. Vandersypen, *Phys. Rev. X* **10**, 021006 (2020).

116. "Auto-tuning of double dot devices in situ with machine learning." Justyna P. Zwolak, T. McJunkin, Sandesh S. Kalantre, J. P. Dodson, E. R. MacQuarrie, D. E. Savage, M. G. Lagally, S. N. Coppersmith, M. A. Eriksson, and Jacob M. Taylor, *Phys. Rev. Applied* **13**, 034075 (2020).
115. "Majorana bound states in nanowire-superconductor hybrid systems in periodic magnetic fields." Viktoriia Kornich, M. G. Vavilov, Mark Friesen, M. A. Eriksson, and S. N. Coppersmith, *Phys. Rev. B* **101**, 125414 (2020).
114. "Measurements of capacitive coupling within a quadruple quantum dot array." S. F. Neyens, E. R. MacQuarrie, J. P. Dodson, J. Corrigan, Nathan Holman, B. Thorgrimsson, M. Palma, T. McJunkin, L. F. Edge, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Phys. Rev. Applied* **12**, 064049 (2019).
113. "Enhancing the dipolar coupling of a S-T0 qubit with a transverse sweet spot." J. C. Abadillo-Uriel, M. A. Eriksson, S. N. Coppersmith, and Mark Friesen, *Nature Comm.* **10**, 5641 (2019).
112. "Quantum computing with semiconductor spins." L. M. K. Vandersypen and M. A. Eriksson, *Physics Today* **72**, 38 (2019).
111. "Benchmarking Gate Fidelities in a Si/SiGe Two-Qubit Device." X. Xue, T. F. Watson, J. Helsen, D. R. Ward, D. E. Savage, M. G. Lagally, S. N. Coppersmith, M. A. Eriksson, S. Wehner, and L. M. K. Vandersypen, *Phys. Rev. X* **9**, 021011 (2019).
110. "Measurements of the Thermal Resistivity of InAlAs, InGaAs, and InAlAs/InGaAs Superlattices." G. R. Jaffe, S. Mei, C. Boyle, J. D. Kirch, D. E. Savage, D. Botez, L. J. Mawst, I. Knezevic, M. G. Lagally, and M. A. Eriksson, *ACS Appl. Mat. Int.* **11**, 11970 (2019).
109. "Compressed Optimization of Device Architectures for Semiconductor Quantum Devices." Adam Frees, John King Gamble, D. R. Ward, R. Blume-Kohout, M. A. Eriksson, Mark Friesen, and S. N. Coppersmith, *Phys. Rev. Applied* **11**, 024063 (2019).
108. "Signatures of atomic-scale structure in the energy dispersion and coherence of a Si quantum-dot qubit." J. C. Abadillo-Uriel, B. Thorgrimsson, Dohun Kim, L. W. Smith, C. B. Simmons, D. R. Ward, R. H. Foote, J. Corrigan, D. E. Savage, M. G. Lagally, M. J. Calderon, S. N. Coppersmith, M. A. Eriksson, and Mark Friesen, *Phys. Rev. B* **98**, 165438 (2018).
107. "The critical role of substrate disorder in valley splitting in Si quantum wells." S. F. Neyens, R. H. Foote, B. Thorgrimsson, T. J. Knapp, T. McJunkin, L. M. K. Vandersypen, P. Amin, N. K. Thomas, J. S. Clarke, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Appl. Phys. Lett.* **112**, 243107 (2018).
106. "Valley dependent anisotropic spin splitting in silicon quantum dots." Rifat Ferdous, E. Kawakami, P. Scarlino, Michal P. Nowak, D. R. Ward, D. E. Savage, M. G. Lagally, S. N. Coppersmith, Mark Friesen, M. A. Eriksson, L. M. K. Vandersypen, and Rajib Rahman, *npj Quant. Inf.* **4**, 26 (2018).

105. “A programmable two-qubit quantum processor in silicon.” T. F. Watson, S. G. J. Philips, E. Kawakami, D. R. Ward, P. Scarlino, M. Veldhorst, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, and L. M. K. Vandersypen, *Nature* **555**, 633 (2018).
104. “Electronic Transport in Hydrogen-Terminated Si(001) Nanomembranes.” W. Peng, M. Zamiri, Shelley A. Scott, F. Cavallo, J. J. Endres, I. Knezevic, M. A. Eriksson, and M. G. Lagally, *Phys. Rev. Applied* **9**, 024037 (2018).
103. “Silicon Nanomembranes with Hybrid Crystal Orientations and Strain States.” Shelley A. Scott, Christoph Deneke, D. M. Paskiewicz, Hyuk Ju Ryu, Angelo Malachias, Stefan Bau-nack, Oliver G. Schmidt, D. E. Savage, M. A. Eriksson, and M. G. Lagally, *ACS Appl. Mat. Int.* **9**, 42372 (2017).
102. “Effects of charge noise on a pulse-gated singlet-triplet S-T<sub>0</sub> qubit.” Zhenyi Qi, X. Wu, D. R. Ward, J. R. Prance, Dohun Kim, John King Gamble, R. T. Mohr, Zhan Shi, D. E. Savage, M. G. Lagally, M. A. Eriksson, Mark Friesen, S. N. Coppersmith, and M. G. Vavilov, *Phys. Rev. B* **96**, 115305 (2017).
101. “Extending the coherence of a quantum dot hybrid qubit.” B. Thorgrimsson, Dohun Kim, Yuan-Chi Yang, L. W. Smith, C. B. Simmons, D. R. Ward, R. H. Foote, J. Corrigan, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *npj Quant. Inf.* **3**, 32 (2017).
100. “A decoherence-free subspace in a charge quadrupole qubit.” Mark Friesen, J. Ghosh, M. A. Eriksson, and S. N. Coppersmith, *Nature Comm.* **8**, 15923 (2017).
99. “Dressed photon-orbital states in a quantum dot: Inter-valley spin resonance.” P. Scarlino, E. Kawakami, T. Jullien, D. R. Ward, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, and L. M. K. Vandersypen, *Phys. Rev. B* **95**, 165429 (2017).
98. “Gate fidelity and coherence of an electron spin in an Si/SiGe quantum dot with micromag-net.” E. Kawakami, T. Jullien, P. Scarlino, D. R. Ward, D. E. Savage, M. G. Lagally, V. V. Dobrovitski, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, and L. M. K. Vandersypen, *Proc. Natl. Acad. Sci.* **113**, 11738 (2016).
97. “State-conditional coherent charge qubit oscillations in a Si/SiGe quadruple quantum dot.” D. R. Ward, Dohun Kim, D. E. Savage, M. G. Lagally, R. H. Foote, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *npj Quant. Inf.* **2**, 16032 (2016).
96. “Combining experiment and optical simulation in coherent X-ray nanobeam characterization of Si/SiGe semiconductor heterostructures.” J. A. Tilka, J. Park, Y. Ahn, A. Pateras, K. C. Sampson, D. E. Savage, J. R. Prance, C. B. Simmons, S. N. Coppersmith, M. A. Eriksson, M. G. Lagally, M. V. Holt, and Paul G. Evans, *J. Appl. Phys.* **120**, 015304 (2016).

95. "Electrode-stress-induced nanoscale disorder in Si quantum electronic devices." J. Park, Y. Ahn, J. A. Tilka, K. C. Sampson, D. E. Savage, J. R. Prance, C. B. Simmons, M. G. Lagally, S. N. Coppersmith, M. A. Eriksson, M. V. Holt, and Paul G. Evans, *APL Materials* **4**, 066102 (2016).
94. "Characterization of a gate-defined double quantum dot in a Si/SiGe nanomembrane." T. J. Knapp, R. T. Mohr, Y. S. Li, B. Thorgrimsson, R. H. Foote, X. Wu, D. R. Ward, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Nanotech.* **27**, 154002 (2016).
93. "Thermal resistance of transferred silicon nanomembrane interfaces." D. P. Schroeder, Z. Aksamija, A. Rath, P. M. Voyles, M. G. Lagally, and M. A. Eriksson, *Phys. Rev. Lett.* **115**, 256101 (2015).
92. "High-fidelity resonant gating of a silicon-based quantum dot hybrid qubit." Dohun Kim, D. R. Ward, C. B. Simmons, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *npj Quant. Inf.* **1**, 15004 (2015).
91. "Transport through an impurity tunnel coupled to a Si/SiGe quantum dot." R. H. Foote, D. R. Ward, J. R. Prance, John King Gamble, E. Nielsen, B. Thorgrimsson, D. E. Savage, A. L. Saraiva, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Appl. Phys. Lett.* **107**, 103112 (2015).
90. "Second Harmonic Coherent Driving of a Spin Qubit in a Si/SiGe Quantum Dot." P. Scarlino, E. Kawakami, D. R. Ward, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, and L. M. K. Vandersypen, *Phys. Rev. Lett.* **115**, 106802 (2015).
89. "High Fidelity Singlet-Triplet S-T<sub>-</sub> Qubits in Inhomogeneous Magnetic Fields." C. H. Wong, M. A. Eriksson, S. N. Coppersmith, and Mark Friesen, *Phys. Rev. B* **92**, 045403 (2015).
88. "Electronic Transport Properties of Epitaxial Si/SiGe Heterostructures Grown on Single-Crystal SiGe Nanomembranes." Y. S. Li, P. Sookchoo, X. Cui, R. T. Mohr, D. E. Savage, R. H. Foote, R. B. Jacobson, J. R. Sanchez-Perez, D. M. Paskiewicz, X. Wu, D. R. Ward, S. N. Coppersmith, M. A. Eriksson, and M. G. Lagally, *ACS Nano* **9**, 4891 (2015).
87. "Identifying single electron charge sensor events using wavelet edge detection." J. R. Prance, B. J. Van Bael, C. B. Simmons, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Nanotech.* **26**, 215201 (2015).
86. "Microwave-driven coherent operations of a semiconductor quantum dot charge qubit." Dohun Kim, D. R. Ward, C. B. Simmons, John King Gamble, R. Blume-Kohout, E. Nielsen, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Nature Nanotech.* **10**, 243 (2015).
85. "Exceptional Charge Transport Properties of Graphene on Germanium." F. Cavallo, R. R. Delgado, M. M. Kelly, J. R. S. Perez, D. P. Schroeder, H. G. Xing, M. A. Eriksson, and M. G. Lagally, *ACS Nano* **8**, 10237 (2014).

84. "Two-axis control of a singlet-triplet qubit with an integrated micromagnet." X. Wu, D. R. Ward, J. R. Prance, Dohun Kim, John King Gamble, R. T. Mohr, Zhan Shi, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Proc. Natl. Acad. Sci.* **111**, 11938 (2014).
83. "Electrical control of a long-lived spin qubit in a Si/SiGe quantum dot." E. Kawakami, P. Scarlino, D. R. Ward, F. R. Braakman, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, M. A. Eriksson, and L. M. K. Vandersypen, *Nature Nanotech.* **9**, 666 (2014).
82. "Quantum control and process tomography of a semiconductor quantum dot hybrid qubit." Dohun Kim, Zhan Shi, C. B. Simmons, D. R. Ward, J. R. Prance, Teck Seng Koh, John King Gamble, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Nature* **511**, 70 (2014).
81. "Signatures of the valley Kondo effect in Si/SiGe quantum dot." Mingyun Yuan, Zhen Yang, Chunyang Tang, A. J. Rimberg, Robert Joynt, D. E. Savage, M. G. Lagally, and M. A. Eriksson, *Phys. Rev. B* **90**, 035302 (2014).
80. "Fast coherent manipulation of three-electron states in a double quantum dot." Zhan Shi, C. B. Simmons, D. R. Ward, J. R. Prance, X. Wu, Teck Seng Koh, John King Gamble, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Nature Comm.* **5**, 3020 (2014).
79. "Semiconductor Quantum Dot Qubits." M. A. Eriksson, S. N. Coppersmith, and M. G. Lagally, *MRS Bulletin* **38**, 794 (2013).
78. "Functionalization of Single-Wall Carbon Nanotubes with Chromophores of Opposite Internal Dipole Orientation." Yuanchun Zhao, Changshui Huang, M. Kim, Bryan M. Wong, F. Leonard, P. Gopalan, and M. A. Eriksson, *ACS Appl. Mat. Int.* **5**, 9355 (2013).
77. "Excitation of a Si/SiGe quantum dot using an on-chip microwave antenna." E. Kawakami, P. Scarlino, L. R. Schreiber, J. R. Prance, D. E. Savage, M. G. Lagally, M. A. Eriksson, and L. M. K. Vandersypen, *Appl. Phys. Lett.* **103**, 132410 (2013).
76. "Coherent quantum oscillations and echo measurements of a Si charge qubit." Zhan Shi, C. B. Simmons, D. R. Ward, J. R. Prance, R. T. Mohr, Teck Seng Koh, John King Gamble, X. Wu, D. E. Savage, M. G. Lagally, Mark Friesen, S. N. Coppersmith, and M. A. Eriksson, *Phys. Rev. B* **88**, 075416 (2013).
75. "Disorder-induced valley-orbit hybrid states in Si quantum dots." John King Gamble, M. A. Eriksson, S. N. Coppersmith, and Mark Friesen, *Phys. Rev. B* **88**, 035310 (2013).
74. "Silicon Quantum Electronics." F. A. Zwanenburg, Andrew S. Dzurak, Andrea Morello, Michelle Y. Simmons, L. C. L. Hollenberg, Gerhard Klimeck, S. Rogge, S. N. Coppersmith, and M. A. Eriksson, *Rev. Mod. Phys.* **85**, 961 (2013).



73. "Integration of on-chip field-effect transistor switches with dopantless Si/SiGe quantum dots for high-throughput testing." D. R. Ward, D. E. Savage, M. G. Lagally, S. N. Coppersmith, and M. A. Eriksson, *Appl. Phys. Lett.* **102**, 213107 (2013).
72. "Probing the electronic structure at semiconductor surfaces using charge transport in nanomembranes." W. Peng, Z. Aksamija, Shelley A. Scott, J. J. Endres, D. E. Savage, I. Knezevic, M. A. Eriksson, and M. G. Lagally, *Nature Comm.* **4**, 1339 (2013).
71. "Molecular Orientation and Photoswitching Kinetics on Single-Walled Carbon Nanotubes by Optical Second Harmonic Generation." David J. McGee, Changshui Huang, M. Kim, J. W. Choi, M. A. Eriksson, and P. Gopalan, *Appl. Phys. Lett.* **101**, 264101 (2012).
70. "Pulse-gated quantum dot hybrid qubit." Teck Seng Koh, John King Gamble, Mark Friesen, M. A. Eriksson, and S. N. Coppersmith, *Phys. Rev. Lett.* **109**, 250503 (2012).
69. "Charge sensing in a Si/SiGe quantum dot with a radio frequency superconducting single-electron transistor." Mingyun Yuan, Zhen Yang, D. E. Savage, M. G. Lagally, M. A. Eriksson, and A. J. Rimberg, *Appl. Phys. Lett.* **101**, 142103 (2012).
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