

Stanford



Paul McIntyre

Rick and Melinda Reed Professor, Professor of Photon Science and Senior Fellow at the Precourt Institute for Energy
Materials Science and Engineering

CONTACT INFORMATION

- **Administrator**

Sybille Katz - Administrative Associate

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Bio

BIO

McIntyre's group performs research on nanostructured inorganic materials for applications in electronics, energy technologies and sensors. He is best known for his work on metal oxide/semiconductor interfaces, ultrathin dielectrics, defects in complex metal oxide thin films, and nanostructured Si-Ge single crystals. His research team synthesizes materials, characterizes their structures and compositions with a variety of advanced microscopies and spectroscopies, studies the passivation of their interfaces, and measures functional properties of devices.

ACADEMIC APPOINTMENTS

- Professor, Materials Science and Engineering
- Professor, Stanford Synchrotron Radiation Lightsource
- Senior Fellow, Precourt Institute for Energy
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Associate Lab Director, SLAC National Accelerator Laboratory, (2019- present)
- Director, Stanford Synchrotron Radiation Lightsource, (2019- present)
- Department Chair, Materials Science and Engineering, (2014-2019)
- Director, Geballe Laboratory for Advance Materials, (2008-2013)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Board of Directors, Materials Research Society (2018 - 2020)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- ScD, MIT (1993)

Teaching

COURSES

2021-22

- Rate Processes in Materials: MATSCI 182 (Win)
- Rate Processes in Materials: MATSCI 212 (Win)

2020-21

- Rate Processes in Materials: MATSCI 197, MATSCI 207 (Win)

2019-20

- Rate Processes in Materials: MATSCI 197, MATSCI 207 (Spr)

2018-19

- Engineering Energy Policy Change: MATSCI 301 (Win)
- Materials Science Colloquium: MATSCI 230 (Aut, Win, Spr)
- Rate Processes in Materials: MATSCI 197, MATSCI 207 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Daniel Angell, Fei Huang, Josiah Yarbrough

Postdoctoral Faculty Sponsor

Manohar Karigerasi

Doctoral Dissertation Advisor (AC)

Michael Braun, J. Zach Lentz, Balreen Saini, Yujo Zhouchangwan Yu

Doctoral Dissertation Co-Advisor (AC)

Molly Andersen, Qing Lin, Tzu-Ling Liu

Master's Program Advisor

Bryan Lee, Erin Nishimura

Doctoral (Program)

Molly Andersen, Michael Braun, Michelle Chen, Emily Lindgren, Balreen Saini

Publications

PUBLICATIONS

- **Bending and precipitate formation mechanisms in epitaxial Ge-core/GeSn-shell nanowires.** *Nanoscale*
Meng, A. C., Wang, Y., Braun, M. R., Lentz, J. Z., Peng, S., Cheng, H., Marshall, A. F., Cai, W., McIntyre, P. C.
2021
- **Link between Gas Phase Reaction Chemistry and the Electronic Conductivity of Atomic Layer Deposited Titanium Oxide Thin Films.** *The journal of physical chemistry letters*
Babadi, A. S., Tang-Kong, R., McIntyre, P. C.
2021: 3625–32
- **Growth mode control for direct-gap core/shell Ge/GeSn nanowire light emission** *MATERIALS TODAY*
Meng, A. C., Braun, M. R., Wang, Y., Peng, S., Tan, W., Lentz, J., Xue, M., Pakzad, A., Marshall, A. F., Harris, J. S., Cai, W., McIntyre, P. C.

2020; 40: 101–13

- **Interfacing Low-Temperature Atomic Layer Deposited TiO₂ Electron Transport Layers with Metal Electrodes** *ADVANCED MATERIALS INTERFACES*
Tan, W., Bowring, A. R., Babadi, A. S., Meng, A. C., Tang-Kong, R., McGehee, M. D., McIntyre, P. C.
2020; 7 (8)
- **Practical challenges in the development of photoelectrochemical solar fuels production** *SUSTAINABLE ENERGY & FUELS*
Spitler, M. T., Modestino, M. A., Deutsch, T. G., Xiang, C. X., Durrant, J. R., Esposito, D. V., Haussener, S., Maldonado, S., Sharp, I. D., Parkinson, B. A., Ginley, D. S., Houle, F. A., Hannappel, et al
2020; 4 (3): 985–95
- **Mid-infrared emission and absorption from GeSn/Ge core-shell nanowires with nanophotonic light extraction**
Peng, S., Braun, M., Meng, A., Shang, Z., Salleo, A., McIntyre, P. C., IEEE
IEEE.2020
- **Initial growth analysis of ALD Al₂O₃ film on hydrogen-terminated Si substrate via in situ XPS** *JAPANESE JOURNAL OF APPLIED PHYSICS*
Fukumizu, H., Sekine, M., Hori, M., McIntyre, P. C.
2020; 59 (1)
- **In-Situ Reflectometry to Monitor Locally-Catalyzed Initiation and Growth of Nanowire Assemblies.** *Nanotechnology*
Braun, M. R., Guniat, L. n., Fontcuberta I Morral, A. n., McIntyre, P. C.
2020
- **Imaging light-induced phase separation dynamics of inorganic halide perovskites**
Peng, S., Meng, A., Tan, W., Braun, M., Saini, B., Severson, K., Marshall, A., McIntyre, P. C., IEEE
IEEE.2020
- **Effect of IrO₂ Spatial Distribution on the Stability and Charge Distribution of Ti_{1-x}Ir_xO₂ Alloys** *CHEMISTRY OF MATERIALS*
Villena, M. A., Magyari-Kope, B., Nishi, Y., McIntyre, P. C., Lanza, M.
2019; 31 (21): 8742–51
- **Phase-field investigation of the stages in radial growth of core-shell Ge/Ge_{1-x}Sn_x nanowires.** *Nanoscale*
Wang, Y., Meng, A. C., McIntyre, P. C., Cai, W.
2019
- **Reversible Decay of Oxygen Evolution Activity of Iridium Catalysts** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Tang-Kong, R., Chidsey, C. D., McIntyre, P. C.
2019; 166 (14): H712–H717
- **Plasmons and inter-band transitions of hexagonal close packed gold nanoparticles** *APPLIED PHYSICS LETTERS*
Peng, S., Meng, A. C., Braun, M. P., Marshall, A. F., McIntyre, P. C.
2019; 115 (5)
- **> 10% solar-to-hydrogen efficiency unassisted water splitting on ALD-protected silicon heterojunction solar cells** *SUSTAINABLE ENERGY & FUELS*
Tan, C., Kemp, K. W., Braun, M. R., Meng, A. C., Tan, W., Chidsey, C. D., Ma, W., Moghadam, F., McIntyre, P. C.
2019; 3 (6): 1490–1500
- **Al₂O₃/Si_{0.7}Ge_{0.3}(001) & HfO₂/Si(0.7)Ge_{0.3}(001) interface trap state reduction via in-situ N₂/H₂ RF downstream plasma passivation** *APPLIED SURFACE SCIENCE*
Breedon, M., Wolf, S., Ueda, S., Fang, Z., Chang, C., Tang, K., McIntyre, P., Kummel, A. C.
2019; 478: 1065–73
- **Engineering High-k/SiGe Interface with ALD Oxide for Selective GeO_x Reduction** *ACS APPLIED MATERIALS & INTERFACES*
Kavrik, M. S., Ercius, P., Cheung, J., Tang, K., Wang, Q., Fruhberger, B., Kim, M., Taur, Y., McIntyre, P. C., Kummel, A. C.
2019; 11 (16): 15111–21
- **Engineering High- k/SiGe Interface with ALD Oxide for Selective GeO_x Reduction.** *ACS applied materials & interfaces*
Kavrik, M. S., Ercius, P., Cheung, J., Tang, K., Wang, Q., Fruhberger, B., Kim, M., Taur, Y., McIntyre, P. C., Kummel, A. C.
2019
- **Atomic Layer Deposited TiO₂-IrO_x Alloys Enable Corrosion Resistant Water Oxidation on Silicon at High Photovoltage** *CHEMISTRY OF MATERIALS*

- Hendricks, O. L., Tang-Kong, R., Babadi, A. S., McIntyre, P. C., Chidsey, C. D.
2019; 31 (1): 90–100
- **Dynamic Structure and Chemistry of the Silicon Solid-Electrolyte Interphase Visualized by Cryogenic Electron Microscopy** *Matter*
Huang, W., Wang, J., Braun, M. R., Zhang, Z., Li, Y., Boyle, D. T., McIntyre, P. C., Cui, Y.
2019; 1 (5)
 - **Understanding the Mechanism of Electronic Defect Suppression Enabled by Nonidealities in Atomic Layer Deposition.** *Journal of the American Chemical Society*
Kavrik, M. S., Bostwick, A. n., Rotenberg, E. n., Tang, K. n., Thomson, E. n., Aoki, T. n., Fruhberger, B. n., Taur, Y. n., McIntyre, P. C., Kummel, A. C.
2019
 - **Silicon Photoanodes for Solar-Driven Oxidation of Brine: A Nanoscale, Photo-Active Analog of the Dimensionally-Stable Anode** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Tang-Kong, R., O'Rourke, C., Mills, A., McIntyre, P. C.
2018; 165 (16): H1072–H1079
 - **Dynamic thermal emission control with InAs-based plasmonic metasurfaces.** *Science advances*
Park, J., Kang, J., Liu, X., Maddox, S. J., Tang, K., McIntyre, P. C., Bank, S. R., Brongersma, M. L.
2018; 4 (12): eaat3163
 - **Surface Defect Passivation of Silicon Micropillars** *ADVANCED MATERIALS INTERFACES*
Mikulik, D., Meng, A. C., Berrazouane, R., Stueckelberger, J., Romero-Gomez, P., Tang, K., Haug, F., Fontcuberta i Morral, A., McIntyre, P. C.
2018; 5 (20)
 - **The Role of Catalyst Adhesion in ALD-TiO₂ Protection of Water Splitting Silicon Anodes.** *ACS applied materials & interfaces*
Tang-Kong, R., Winter, R., Brock, R., Tracy, J., Eizenberg, M., Dauskardt, R. H., McIntyre, P. C.
2018
 - **Ultralow Defect Density at Sub-0.5 nm HfO₂/SiGe Interfaces via Selective Oxygen Scavenging** *ACS APPLIED MATERIALS & INTERFACES*
Kavrik, M. S., Thomson, E., Chagarov, E., Tang, K., Ueda, S. T., Hou, V., Aoki, T., Kim, M., Fruhberger, B., Taur, Y., McIntyre, P. C., Kummel, A. C.
2018; 10 (36): 30794–802
 - **Atomic Layer Deposited TiO₂-IrOx Alloy as a Hole Transport Material for Perovskite Solar Cells** *ADVANCED MATERIALS INTERFACES*
Tan, W., Hendricks, O. L., Meng, A. C., Braun, M. R., McGehee, M. D., Chidsey, C. D., McIntyre, P. C.
2018; 5 (16)
 - **Interfacial Cation-Defect Charge Dipoles in Stacked TiO₂/Al₂O₃ Gate Dielectrics** *ACS APPLIED MATERIALS & INTERFACES*
Zhang, L., Janotti, A., Meng, A. C., Tang, K., Van de Walle, C. G., McIntyre, P. C.
2018; 10 (6): 5140–46
 - **Thermal Stability of Mixed Cation Metal Halide Perovskites in Air** *ACS APPLIED MATERIALS & INTERFACES*
Tang, W., Bowring, A. R., Meng, A. C., McGehee, M. D., McIntyre, P. C.
2018; 10 (6): 5485–91
 - **Bias temperature stress induced hydrogen depassivation from Al₂O₃/InGaAs interface defects** *JOURNAL OF APPLIED PHYSICS*
Tang, K., Droopad, R., McIntyre, P. C.
2018; 123 (2)
 - **Using liquid electrolytes in dielectric reliability studies**
Lanza, M., Tang, K., Meng, A. C., Hui, F., Shi, Y., Han, T., Petach, T., Hitzman, C., Koh, A., Goldhaber-Gordon, D., McIntyre, P. C., IEEE
IEEE.2018
 - **Contact Selectivity Engineering in a 2 μm Thick Ultrathin c-Si Solar Cell Using Transition-Metal Oxides Achieving an Efficiency of 10.8.** *ACS applied materials & interfaces*
Xue, M., Islam, R., Meng, A. C., Lyu, Z., Lu, C., Tae, C., Braun, M. R., Zang, K., McIntyre, P. C., Kamins, T. I., Saraswat, K. C., Harris, J. S.
2017
 - **Resistive Random Access Memory Cells with a Bilayer TiO₂/SiO_x Insulating Stack for Simultaneous Filamentary and Distributed Resistive Switching** *ADVANCED FUNCTIONAL MATERIALS*
Xiao, N., Villena, M. A., Yuan, B., Chen, S., Wang, B., Elias, M., Shi, Y., Hui, F., Jing, X., Scheuermann, A., Tang, K., McIntyre, P. C., Lanza, et al

2017; 27 (33)

- **Effects of H-2 High-pressure Annealing on HfO₂/Al₂O₃/In_{0.53}Ga_{0.47}As Capacitors: Chemical Composition and Electrical Characteristics** *SCIENTIFIC REPORTS*
Choi, S., An, Y., Lee, C., Song, J., Manh-Cuong Nguyen, Byun, Y., Choi, R., McIntyre, P. C., Kim, H.
2017; 7: 9769
- **Phase Field Model for Morphological Transition in Nanowire Vapor-Liquid-Solid Growth** *CRYSTAL GROWTH & DESIGN*
Wang, Y., McIntyre, P. C., Cai, W.
2017; 17 (4): 2211-2217
- **Coexistence of Grain-Boundaries-Assisted Bipolar and Threshold Resistive Switching in Multilayer Hexagonal Boron Nitride** *ADVANCED FUNCTIONAL MATERIALS*
Pan, C., Ji, Y., Xiao, N., Hui, F., Tang, K., Guo, Y., Xie, X., Puglisi, F. M., Larcher, L., Miranda, E., Jiang, L., Shi, Y., Valov, et al
2017; 27 (10)
- **Interface Defect Hydrogen Depassivation and Capacitance-Voltage Hysteresis of Al₂O₃/InGaAs Gate Stacks** *ACS APPLIED MATERIALS & INTERFACES*
Tang, K., Roberto Palumbo, F., Zhang, L., Droopad, R., McIntyre, P. C.
2017; 9 (8): 7819-7825
- **Low temperature thermal ALD of a Si_xN_x interfacial diffusion barrier and interface passivation layer on SixGe_{1-x}(001) and SixGe_{1-x}(110)** *JOURNAL OF CHEMICAL PHYSICS*
Edmonds, M., Sardashti, K., Wolf, S., Chagarov, E., Clemons, M., Kent, T., Park, J. H., Tang, K., McIntyre, P. C., Yoshida, N., Dong, L., Holmes, R., Alvarez, et al
2017; 146 (5)
- **Distinguishing Oxygen Vacancy Electromigration and Conductive Filament Formation in TiO₂ Resistance Switching Using Liquid Electrolyte Contacts.** *Nano letters*
Tang, K. n., Meng, A. C., Hui, F. n., Shi, Y. n., Petach, T. n., Hitzman, C. n., Koh, A. L., Goldhaber-Gordon, D. n., Lanza, M. n., McIntyre, P. C.
2017; 17 (7): 4390-99
- **Electrochemical impedance spectroscopy for quantitative interface state characterization of planar and nanostructured semiconductor-dielectric interfaces.** *Nanotechnology*
Meng, A. C., Tang, K. n., Braun, M. R., Zhang, L. n., McIntyre, P. C.
2017; 28 (41): 415704
- **Core-Shell Germanium/Germanium Tin Nanowires Exhibiting Room Temperature Direct- and Indirect-Gap Photoluminescence** *NANO LETTERS*
Meng, A. C., Fenrich, C. S., Braun, M. R., McVittie, J. P., Marshall, A. F., Harris, J. S., McIntyre, P. C.
2016; 16 (12): 7521-7529
- **Temperature Dependent Border Trap Response Produced by a Defective Interfacial Oxide Layer in Al₂O₃/InGaAs Gate Stacks** *ACS APPLIED MATERIALS & INTERFACES*
Tang, K., Meng, A. C., Droopad, R., McIntyre, P. C.
2016; 8 (44): 30601-30607
- **Isolating the Photovoltaic Junction: Atomic Layer Deposited TiO₂-RuO₂ Alloy Schottky Contacts for Silicon Photoanodes** *ACS APPLIED MATERIALS & INTERFACES*
Hendricks, O. L., Scheuermann, A. G., Schmidt, M., Hurley, P. K., McIntyre, P. C., Chidsey, C. E.
2016; 8 (36): 23763-23773
- **Oxide Charge Engineering of Atomic Layer Deposited AlO_xN_y/Al₂O₃ Gate Dielectrics: A Path to Enhancement Mode GaN Devices.** *ACS applied materials & interfaces*
Negara, M. A., Kitano, M., Long, R. D., McIntyre, P. C.
2016; 8 (32): 21089-21094
- **Characterization of the photocurrents generated by the laser of atomic force microscopes** *REVIEW OF SCIENTIFIC INSTRUMENTS*
Ji, Y., Hui, F., Shi, Y., Iglesias, V., Lewis, D., Niu, J., Long, S., Liu, M., Hofer, A., Frammelsberger, W., Benstetter, G., Scheuermann, A., McIntyre, et al
2016; 87 (8)
- **Interface Engineering for Atomic Layer Deposited Alumina Gate Dielectric on SiGe Substrates.** *ACS applied materials & interfaces*
Zhang, L., Guo, Y., Hassan, V. V., Tang, K., Foad, M. A., Woicik, J. C., Pianetta, P., Robertson, J., McIntyre, P. C.
2016; 8 (29): 19110-19118

- **Atomic Layer Deposited Corrosion Protection: A Path to Stable and Efficient Photoelectrochemical Cells.** *journal of physical chemistry letters*
Scheuermann, A. G., McIntyre, P. C.
2016; 7 (14): 2867-2878
- **Effects of Titanium Layer Oxygen Scavenging on the High-k/InGaAs Interface** *ACS APPLIED MATERIALS & INTERFACES*
Winter, R., Shekhter, P., Tang, K., Floreano, L., Verdini, A., McIntyre, P. C., Eizenberg, M.
2016; 8 (26): 16979-16984
- **Titanium Oxide Crystallization and Interface Defect Passivation for High Performance Insulator-Protected Schottky Junction MIS Photoanodes** *ACS APPLIED MATERIALS & INTERFACES*
Scheuermann, A. G., Lawrence, J. P., Meng, A. C., Tang, K., Hendricks, O. L., Chidsey, C. E., McIntyre, P. C.
2016; 8 (23): 14596-14603
- **Engineering Interfacial Silicon Dioxide for Improved Metal-Insulator-Semiconductor Silicon Photoanode Water Splitting Performance** *ACS APPLIED MATERIALS & INTERFACES*
Satterthwaite, P. F., Scheuermann, A. G., Hurley, P. K., Chidsey, C. E., McIntyre, P. C.
2016; 8 (20): 13140-13149
- **Sulfur passivation for the formation of Si-terminated Al₂O₃/SiGe(001) interfaces** *APPLIED SURFACE SCIENCE*
Sardashti, K., Hu, K., Tang, K., Park, S., Kim, H., Madiseti, S., McIntyre, P., Oktyabrsky, S., Siddiqui, S., Sahu, B., Yoshida, N., Kachian, J., Kummel, et al
2016; 366: 455-463
- **Spontaneous, Defect-Free Kinking via Capillary Instability during Vapor-Liquid-Solid Nanowire Growth.** *Nano letters*
Li, Y., Wang, Y., Ryu, S., Marshall, A. F., Cai, W., McIntyre, P. C.
2016; 16 (3): 1713-1718
- **Nitride passivation of the interface between high-k dielectrics and SiGe** *APPLIED PHYSICS LETTERS*
Sardashti, K., Hu, K., Tang, K., Madiseti, S., McIntyre, P., Oktyabrsky, S., Siddiqui, S., Sahu, B., Yoshida, N., Kachian, J., Dong, L., Fruhberger, B., Kummel, et al
2016; 108 (1)
- **Conductance and capacitance of bilayer protective oxides for silicon water splitting anodes** *ENERGY & ENVIRONMENTAL SCIENCE*
Scheuermann, A. G., Kemp, K. W., Tang, K., Lu, D. Q., Satterthwaite, P. F., Ito, T., Chidsey, C. E., McIntyre, P. C.
2016; 9 (2): 504-516
- **From Twinning to Pure Zincblende Catalyst-Free InAs(Sb) Nanowires.** *Nano letters*
Potts, H. n., Friedl, M. n., Amaduzzi, F. n., Tang, K. n., Tütüncüoğlu, G. n., Matteini, F. n., Alarcon Lladó, E. n., McIntyre, P. C., Fontcuberta i Morral, A. n.
2016; 16 (1): 637-43
- **From Twinning to Pure Zincblende Catalyst-Free InAs(Sb) Nanowires** *NANO LETTERS*
Potts, H., Friedl, M., Amaduzzi, F., Tang, K., Tuetuencueoglu, G., Matteini, F., Llado, E. A., McIntyre, P. C., Fontcuberta i Morral, A.
2016; 16 (1): 637-643
- **Design principles for maximizing photovoltage in metal-oxide-protected water-splitting photoanodes** *NATURE MATERIALS*
Scheuermann, A. G., Lawrence, J. P., Kemp, K. W., Ito, T., Walsh, A., Chidsey, C. E., Hurley, P. K., McIntyre, P. C.
2016; 15 (1): 99-?
- **Understanding Photovoltage in Insulator-Protected Water Oxidation Half-Cells** *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*
Scheuermann, A. G., Chidsey, C. E., McIntyre, P. C.
2016; 163 (3): H192-H200
- **Border trap reduction in Al₂O₃/InGaAs gate stacks** *APPLIED PHYSICS LETTERS*
Tang, K., Winter, R., Zhang, L., Droopad, R., Eizenberg, M., McIntyre, P. C.
2015; 107 (20)
- **The influence of surface preparation on low temperature HfO₂ ALD on InGaAs (001) and (110) surfaces** *JOURNAL OF CHEMICAL PHYSICS*
Kent, T., Tang, K., Chobpattana, V., Negara, M. A., Edmonds, M., Mitchell, W., Sahu, B., Galatage, R., Droopad, R., McIntyre, P., Kummel, A. C.
2015; 143 (16)
- **Selective Passivation of GeO₂/Ge Interface Defects in Atomic Layer Deposited High-k MOS Structures** *ACS APPLIED MATERIALS & INTERFACES*

- Zhang, L., Li, H., Guo, Y., Tang, K., Woicik, J., Robertson, J., McIntyre, P. C.
2015; 7 (37): 20499-20506
- **Fermi level pinning in metal/Al₂O₃/InGaAs gate stack after post metallization annealing** *JOURNAL OF APPLIED PHYSICS*
Winter, R., Krylov, I., Cytermann, C., Tang, K., Ahn, J., McIntyre, P. C., Eizenberg, M.
2015; 118 (5)
 - **Crystallization Pathway for Metastable Hexagonal Close-Packed Gold in Germanium Nanowire Catalysts** *CRYSTAL GROWTH & DESIGN*
Marshall, A. F., Thombare, S. V., McIntyre, P. C.
2015; 15 (8): 3734-3739
 - **Ultrafast Carrier Dynamics of a Photo-Excited Germanium Nanowire-Air Metamaterial** *ACS PHOTONICS*
Li, Y., Clady, R., Marshall, A. F., Park, J., Thombare, S. V., Chan, G., Schmidt, T. W., Brongersma, M. L., McIntyre, P. C.
2015; 2 (8): 1091-1098
 - **Interface Trap Density Reduction for Al₂O₃/GaN (0001) Interfaces by Oxidizing Surface Preparation prior to Atomic Layer Deposition** *ACS APPLIED MATERIALS & INTERFACES*
Zhernokletov, D. M., Negara, M. A., Long, R. D., Aloni, S., Nordlund, D., McIntyre, P. C.
2015; 7 (23): 12774-12780
 - **A Unified Two-Band Model for Oxide Traps and Interface States in MOS Capacitors** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
Taur, Y., Chen, H., Xie, Q., Ahn, J., McIntyre, P. C., Lin, D., Vais, A., Veksler, D.
2015; 62 (3): 813-820
 - **Control of InGaAs and InAs facets using metal modulation epitaxy** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B*
Wistey, M. A., Baraskar, A. K., Singiseti, U., Burek, G. J., Shin, B., Kim, E., McIntyre, P. C., Gossard, A. C., Rodwell, M. J.
2015; 33 (1)
 - **Tailoring the Interface Quality between HfO₂ and GaAs via in Situ ZnO Passivation Using Atomic Layer Deposition** *ACS APPLIED MATERIALS & INTERFACES*
Byun, Y., Choi, S., An, Y., McIntyre, P. C., Kim, H.
2014; 6 (13): 10482-10488
 - **A three-dimensional phase field model for nanowire growth by the vapor-liquid-solid mechanism** *MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING*
Wang, Y., Ryu, S., McIntyre, P. C., Cai, W.
2014; 22 (5)
 - **Ultrafast electron and phonon response of oriented and diameter-controlled germanium nanowire arrays.** *Nano letters*
Li, Y., Clady, R., Park, J., Thombare, S. V., Schmidt, T. W., Brongersma, M. L., McIntyre, P. C.
2014; 14 (6): 3427-3431
 - **The effect of post oxide deposition annealing on the effective work function in metal/Al₂O₃/InGaAs gate stack** *APPLIED PHYSICS LETTERS*
Winter, R., Krylov, I., Ahn, J., McIntyre, P. C., Eizenberg, M.
2014; 104 (20)
 - **Effects of oxide thickness and temperature on dispersions in InGaAs MOS C-V characteristics** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B*
Chen, H., Ahn, J., McIntyre, P. C., Taur, Y.
2014; 32 (3)
 - **Subcutaneous oxidation of In_{0.53}Ga_{0.47}As(100) through ultra-thin atomic layer deposited Al₂O₃** *APPLIED PHYSICS LETTERS*
Ahn, J., McIntyre, P. C.
2013; 103 (25)
 - **Kinetics of germanium nanowire growth by the vapor-solid-solid mechanism with a Ni-based catalyst** *APL MATERIALS*
Thombare, S. V., Marshall, A. F., McIntyre, P. C.
2013; 1 (6)
 - **The Characterization and Passivation of Fixed Oxide Charges and Interface States in the Al₂O₃/InGaAs MOS System** *IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY*

- Hurley, P. K., O'Connor, E., Djara, V., Monaghan, S., Povey, I. M., Long, R. D., Sheehan, B., Lin, J., McIntyre, P. C., Brennan, B., Wallace, R. M., Pemble, M. E., Cherkaoui, et al
2013; 13 (4): 429-443
- **Interface trap evaluation of Pd/Al₂O₃/GaN metal oxide semiconductor capacitors and the influence of near-interface hydrogen** *APPLIED PHYSICS LETTERS*
Long, R. D., Jackson, C. M., Yang, J., Hazeghi, A., Hitzman, C., Majety, S., Arehart, A. R., Nishi, Y., Ma, T. P., Ringel, S. A., McIntyre, P. C.
2013; 103 (20)
 - **Comparison of Bulk-Oxide Trap Models: Lumped Versus Distributed Circuit** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
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