




James Harris

James and Elenor Chesebrough Professor in the School of Engineering, Emeritus
Electrical Engineering

 NIH Biosketch available Online

 Curriculum Vitae available Online

Bio

BIO

Harris utilizes molecular beam epitaxy (MBE) of III-V compound semiconductor materials to investigate new materials for electronic and optoelectronic devices. He utilizes heterojunctions, superlattices, quantum wells, and three-dimensional self-assembled quantum dots to create metastable engineered materials with novel or improved properties for electronic and optoelectronic devices. His early work in the 1970's demonstrating a practical heterojunction bipolar transistor led to their application in every mobile phone today and record setting solar cell efficiency. He has recently focused on three areas: 1) integration of photonic devices and micro optics for creation of new minimally invasive bio and medical systems for micro-array and neural imaging and 2) application of nanostructures semiconductors for the acceleration of electrons using light, a dielectric Laser Accelerator (DLA), and 3) novel materials and nano structuring for high efficiency solar cells and photo electrochemical water splitting for the generation of hydrogen.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Electrical Engineering
- Member, Bio-X
- Affiliate, Precourt Institute for Energy
- Affiliate, Stanford Woods Institute for the Environment
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Jun-ichi Nishizawa Medal, IEEE (2023)
- Elected Member, National Academy of Engineering (2011)
- Aristotle Award, Semiconductor Research Corporation (2013)
- Al Cho MBE Award, International MBE Conference (2014)
- MBE Innovator Award, International MBE Conference (2008)
- Alexander Humboldt Senior Research Prize, Alexander Humboldt (1999)
- Morris Liebmann Award, IEEE (2000)
- Welker Medal, International Symposium on Compound Semiconductors (2000)
- Fellow, IEEE (1988)
- Fellow, American Physical Society (1992)
- Fellow, Optical Society of America (2005)
- Fellow, Materials Research Society (2009)

PROGRAM AFFILIATIONS

- Stanford SystemX Alliance

PROFESSIONAL EDUCATION

- PhD, Stanford University , Electrical Engineering (1969)
- MS, Stanford University , Electrical Engineering (1965)
- BS, Stanford University , Electrical Engineering (1964)

LINKS

- <http://www-ee.stanford.edu/~harris>: <http://www-ee.stanford.edu/~harris>

Teaching

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Maliha Noshin, Kelly Woo

Publications

PUBLICATIONS

- **Strain-Induced Enhancement of Electroluminescence from Highly Strained Germanium Light-Emitting Diodes** *ACS PHOTONICS*
Jiang, J., Xue, M., Lu, C., Fenrich, C. S., Morea, M., Zang, K., Gao, J., Cheng, M., Zhang, Y., Kamins, T. I., Harris, J. S., Sun, J.
2019; 6 (4): 915–23
- **Silicon nitride waveguide as a power delivery component for on-chip dielectric laser accelerators** *OPTICS LETTERS*
Tan, S., Zhao, Z., Urbanek, K., Hughes, T., Lee, Y., Fan, S., Harris, J. S., Byer, R. L.
2019; 44 (2): 335–38
- **Improving characterization capabilities in new single-photon avalanche diode research.** *The Review of scientific instruments*
Ding, X. n., Zang, K. n., Zheng, T. n., Fei, Y. n., Huang, M. n., Liu, X. n., Wang, Y. n., Jin, G. n., Huo, Y. n., Harris, J. S., Jiang, X. n.
2019; 90 (4): 043108
- **Integrated photonics for NASA applications**
Krainak, M., Stephen, M., Troupaki, E., Tedder, S., Reyna, B., Klamkin, J., Zhao, H., Song, B., Fridlander, J., Minh Tran, Bowers, J. E., Bergman, K., Lipson, M., et al
SPIE-INT SOC OPTICAL ENGINEERING.2019
- **Electrically Tunable, CMOS-Compatible Metamaterial Based on Semiconductor Nanopillars** *ACS PHOTONICS*
Morea, M., Zang, K., Kamins, T. I., Brongersma, M. L., Harris, J. S.
2018; 5 (11): 4702–9
- **Epsilon-Near-Zero Si Slot-Waveguide Modulator** *ACS PHOTONICS*
Liu, X., Zang, K., Kang, J., Park, J., Harris, J. S., Kik, P. G., Brongersma, M. L.
2018; 5 (11): 4484–90
- **Design of a tapered slot waveguide dielectric laser accelerator for sub-relativistic electrons** *OPTICS EXPRESS*
Zhao, Z., Hughes, T. W., Tan, S., Deng, H., Sapra, N., England, R., Vuckovic, J., Harris, J. S., Byer, R. L., Fan, S.
2018; 26 (18): 22801–15
- **Elements of a dielectric laser accelerator** *OPTICA*
McNeur, J., Kozak, M., Schoenenberger, N., Leedle, K. J., Deng, H., Ceballos, A., Hoogland, H., Ruehl, A., Hartl, I., Holzwarth, R., Solgaard, O., Harris, J. S., Byer, et al
2018; 5 (6): 687–90

- **Pile-up correction in characterizing single-photon avalanche diodes of high dark count rate** *OPTICAL AND QUANTUM ELECTRONICS*
Ding, X., Zang, K., Fei, Y., Zheng, T., Su, T., Morea, M., Jin, G., Harris, J. S., Jiang, X., Zhang, Q.
2018; 50 (6)
- **On-Chip Laser-Power Delivery System for Dielectric Laser Accelerators** *PHYSICAL REVIEW APPLIED*
Hughes, T. W., Tan, S., Zhao, Z., Sapra, N. V., Leedle, K. J., Deng, H., Miao, Y., Black, D. S., Solgaard, O., Harris, J. S., Vuckovic, J., Byer, R. L., Fan, et al
2018; 9 (5)
- **Phase-dependent laser acceleration of electrons with symmetrically driven silicon dual pillar gratings** *OPTICS LETTERS*
Leedle, K. J., Black, D. S., Miao, Y., Urbanek, K. E., Ceballos, A., Deng, H., Harris, J. S., Solgaard, O., Byer, R. L.
2018; 43 (9): 2181–84
- **Carrier-selective interlayer materials for silicon solar cell contacts** *JOURNAL OF APPLIED PHYSICS*
Xue, M., Islam, R., Chen, Y., Chen, J., Lu, C., Pleus, A., Tae, C., Xu, K., Liu, Y., Kamins, T. I., Saraswat, K. C., Harris, J. S.
2018; 123 (14)
- **γ Spatiotemporal characteristics of retinal response to network-mediated photovoltaic stimulation** *JOURNAL OF NEUROPHYSIOLOGY*
Ho, E., Smith, R., Goetz, G., Lei, X., Galambos, L., Kamins, T. I., Harris, J., Mathieson, K., Palanker, D., Sher, A.
2018; 119 (2): 389–400
- **Electrical and optical 3D modelling of light-trapping single-photon avalanche diode**
Zheng, T., Zang, K., Morea, M., Xue, M., Lu, C., Jiang, X., Zhang, Q., Kamins, T. I., Harris, J. S., Witzigmann, B., Osinski, M., Arakawa, Y.
SPIE-INT SOC OPTICAL ENGINEERING.2018
- **NASA Integrated Photonics**
Krainak, M., Stephen, M., Klamkin, J., Bergman, K., Lipson, M., Mookherjea, S., Lesiher, P., Ho, S., Moslehi, B., Harris, J., Matsko, A., Savchenkov, A., Yoo, et al
IEEE.2018
- **Investigation of Nickel Oxide as Carrier-selective Interlayer for Silicon Solar Cell Contacts**
Xue, M., Islam, R., Chen, Y., Lu, C., Lyu, Z., Zang, K., Jia, J., Deng, H., Kamins, T., Saraswat, K., Harris, J., IEEE
IEEE.2018: 2180–82
- **Comprehensive modeling on luminescent coupling dependency in multi-junction solar cells**
Sun, Z., Lyu, Z., Jia, J., Xue, M., Chen, K., Fang, S., Harris, J. S., Witzigmann, B., Osinski, M., Arakawa, Y.
SPIE-INT SOC OPTICAL ENGINEERING.2018
- **Contact Selectivity Engineering in a 2 μ m 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
- **First-principle Study for More Accurate Optical and Electrical Characterization of Ge_{1-x}Sn_x Alloy for Si and Group-IV Device Applications** *JOURNAL OF SEMICONDUCTOR TECHNOLOGY AND SCIENCE*
Cho, Y., Cho, S., Park, B., Harris, J. S.
2017; 17 (5): 675–84
- **Silicon single-photon avalanche diodes with nano-structured light trapping** *NATURE COMMUNICATIONS*
Zang, K., Jiang, X., Huo, Y., Ding, X., Morea, M., Chen, X., Lu, C., Ma, J., Zhou, M., Xia, Z., Yu, Z., Kamins, T. I., Zhang, et al
2017; 8: 628
- **Passivation of multiple-quantum-well Ge_{0.97}Sn_{0.03}/Ge p-i-n photodetectors** *APPLIED PHYSICS LETTERS*
Morea, M., Brendel, C. E., Zang, K., Suh, J., Fenrich, C. S., Huang, Y., Chung, H., Huo, Y., Kamins, T. I., Saraswat, K. C., Harris, J. S.
2017; 110 (9)
- **Multifunctional, inexpensive, and reusable nanoparticle-printed biochip for cell manipulation and diagnosis.** *Proceedings of the National Academy of Sciences of the United States of America*
Esfandyarpour, R., DiDonato, M. J., Yang, Y., Durmus, N. G., Harris, J. S., Davis, R. W.
2017; 114 (8): E1306-E1315

- **Sub-optical-cycle control of free electrons by optical near-fields**
Kozak, M., McNeur, J., Leedle, K. J., Deng, H., Schoenenberger, N., Ruehl, A., Hartl, I., Harris, J. S., Byer, R. L., Hommelhoff, P., IEEE
IEEE.2017
- **Nanostructured Dielectric Layer for Ultrathin Crystalline Silicon Solar Cells** *INTERNATIONAL JOURNAL OF PHOTOENERGY*
Chen, Y., Kang, Y., Jia, J., Huo, Y., Xue, M., Lyu, Z., Liang, D., Zhao, L., Harris, J. S.
2017
- **Ge/SiGe Quantum-well Micro-bridges with High Tensile Strain**
Xue, M., Chen, X., Chen, J., Kao, M., Shang, C., Zang, K., Huo, Y., Lu, C., Chen, Y., Deng, H., Kamins, T. I., Harris, J. S., IEEE
IEEE.2017
- **Simulations of Taper Designs for Integrated Ge/SiGe Waveguide System**
Lu, C., Zang, K., Huo, Y., Chen, X., Fei, E. T., Xue, M., Kamins, T. I., Harris, J. S., IEEE
IEEE.2017
- **Surface textured silicon single-photon avalanche diode**
Zang, K., Ding, X., Jiang, X., Huo, Y., Morea, M., Chen, X., Lu, C., Xue, M., Chen, Y., Shang, C., Kamins, T. I., Zhang, Q., Pan, et al
IEEE.2017
- **Tensile-strained Ge/SiGe multiple quantum well microdisks** *Photonics Research*
Chen, X., Fenrich, C. S., Xue, M., Kao, M., Zang, K., Lu, C., Fei, E. T., Chen, Y., Huo, Y., Kamins, T. I., Harris, J. S.
2017; 5 (6): B7-B14
- **Strained Pseudomorphic Ge_{1-x}Sn_x Multiple Quantum Well Microdisk Using Si₃N₄ Stressor Layer** *ACS PHOTONICS*
Fenrich, C. S., Chen, X., Chen, R., Huang, Y., Chung, H., Kao, M., Huo, Y., Kamins, T. I., Harris, J. S.
2016; 3 (12): 2231-2236
- **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
- **Solar water splitting by photovoltaic-electrolysis with a solar-to-hydrogen efficiency over 30.** *Nature communications*
Jia, J., Seitz, L. C., Benck, J. D., Huo, Y., Chen, Y., Ng, J. W., Bilir, T., Harris, J. S., Jaramillo, T. F.
2016; 7: 13237-?
- **SiC protective coating for photovoltaic retinal prosthesis.** *Journal of neural engineering*
Lei, X., Kane, S., Cogan, S., Lorach, H., Galambos, L., Huie, P., Mathieson, K., Kamins, T., Harris, J., Palanker, D.
2016; 13 (4): 046016-?
- **Analysis of luminescent coupling effects in n series-connected multijunction solar cells** *PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE*
Mazouchi, M., Jia, J., Huo, Y., Miao, Y., Kang, Y., Chen, Y., Harris, J. S., Dutta, M.
2016; 213 (4): 941-946
- **Dry-wet digital etching of Ge_{1-x}Sn_x** *APPLIED PHYSICS LETTERS*
Shang, C. K., Wang, V., Chen, R., Gupta, S., Huang, Y., Pao, J. J., Huo, Y., Sanchez, E., Kim, Y., Kamins, T. I., Harris, J. S.
2016; 108 (6)
- **Nanoelectronic three-dimensional (3D) nanotip sensing array for real-time, sensitive, label-free sequence specific detection of nucleic acids.** *Biomedical microdevices*
Esfandyarpour, R., Yang, L., Koochak, Z., Harris, J. S., Davis, R. W.
2016; 18 (1): 7-?
- **Photovoltaic Pixels for Neural Stimulation: Circuit Models and Performance.** *IEEE transactions on biomedical circuits and systems*
Boinagrov, D., Lei, X., Goetz, G., Kamins, T. I., Mathieson, K., Galambos, L., Harris, J. S., Palanker, D.
2016; 10 (1): 85-97
- **Interactions of Prosthetic and Natural Vision in Animals With Local Retinal Degeneration** *INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE*
Lorach, H., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Dalal, R., Huie, P., Harris, J., Palanker, D.

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- **Interactions of Prosthetic and Natural Vision in Animals With Local Retinal Degeneration.** *Investigative ophthalmology & visual science*
Lorach, H., Lei, X., Galambos, L., Kamins, T., Mathieson, K., Dalal, R., Huie, P., Harris, J., Palanker, D.
2015; 56 (12): 7444-50
- **Dielectric laser acceleration of sub-100 keV electrons with silicon dual-pillar grating structures** *OPTICS LETTERS*
Leedle, K. J., Ceballos, A., Deng, H., Solgaard, O., Pease, R. F., Byer, R. L., Harris, J. S.
2015; 40 (18): 4344-4347
- **Investigation of germanium quantum-well light sources** *OPTICS EXPRESS*
Fei, E. T., Chen, X., Zang, K., Huo, Y., Shambat, G., Miller, G., Liu, X., Dutt, R., Kamins, T. I., Vuckovic, J., Harris, J. S.
2015; 23 (17): 22424-22430
- **Epitaxial growth of GaP/AlGaP mirrors on Si for low thermal noise optical coatings** *OPTICAL MATERIALS EXPRESS*
Lin, A. C., Bassiri, R., Omar, S., Markosyan, A. S., Lantz, B., Route, R., Byer, R. L., Harris, J. S., Fejer, M. M.
2015; 5 (8): 1890-1897
- **Nanoscale Probing of Local Electrical Characteristics on MBE-Grown Bi#Te# Surfaces under Ambient Conditions.** *Nano letters*
Macedo, R. J., Harrison, S. E., Dorofeeva, T. S., Harris, J. S., Kiehl, R. A.
2015; 15 (7): 4241-7
- **Performance of photovoltaic arrays in-vivo and characteristics of prosthetic vision in animals with retinal degeneration** *VISION RESEARCH*
Lorach, H., Goetz, G., Mandel, Y., Lei, X., Kamins, T. I., Mathieson, K., Huie, P., Dalal, R., Harris, J. S., Palanker, D.
2015; 111: 142-148
- **Photovoltaic restoration of sight with high visual acuity** *NATURE MEDICINE*
Lorach, H., Goetz, G., Smith, R., Lei, X., Mandel, Y., Kamins, T., Mathieson, K., Huie, P., Harris, J., Sher, A., Palanker, D.
2015; 21 (5): 476-U254
- **Photovoltaic restoration of sight with high visual acuity.** *Nature medicine*
Lorach, H., Goetz, G., Smith, R., Lei, X., Mandel, Y., Kamins, T., Mathieson, K., Huie, P., Harris, J., Sher, A., Palanker, D.
2015; 21 (5): 476-482
- **Bias-dependence of luminescent coupling efficiency in multijunction solar cells** *OPTICS EXPRESS*
Jia, J., Miao, Y., Kang, Y., Huo, Y., Mazouchi, M., Chen, Y., Zhao, L., Deng, H., Supaniratisai, P., AlQahtani, S. H., Harris, J. S.
2015; 23 (7): A219-A231
- **Microring bio-chemical sensor with integrated low dark current Ge photodetector** *APPLIED PHYSICS LETTERS*
Zang, K., Zhang, D., Huo, Y., Chen, X., Lu, C., Fei, E. T., Kamins, T. I., Feng, X., Huang, Y., Harris, J. S.
2015; 106 (10)
- **Laser acceleration and deflection of 96.3 keV electrons with a silicon dielectric structure** *OPTICA*
Leedle, K. J., Pease, R. F., Byer, R. L., Harris, J. S.
2015; 2 (2): 158-161
- **Efficiency Enhancement of Gallium Arsenide Photovoltaics Using Solution-Processed Zinc Oxide Nanoparticle Light Scattering Layers** *JOURNAL OF NANOMATERIALS*
Kang, Y., Liang, D., Mehra, S., Huo, Y., Chen, Y., Christoforo, M. G., Salleo, A., Harris, J. S.
2015
- **On-chip plasmonic waveguide optical waveplate.** *Scientific reports*
Gao, L., Huo, Y., Zang, K., Paik, S., Chen, Y., Harris, J. S., Zhou, Z.
2015; 5: 15794-?
- **Photovoltaic Restoration of Sight with High Visual Acuity in Rats with Retinal Degeneration** *25th Conference on Ophthalmic Technologies held as a part of the SPIE Photonics West BiOS Meeting*
Palanker, D., Goetz, G., Lorach, H., Mandel, Y., Smith, R., Boinagrov, D., Lei, X., KAMINS, T., Harris, J., Mathieson, K., Sher, A.
SPIE-INT SOC OPTICAL ENGINEERING.2015
- **Controlled removal of amorphous Se capping layer from a topological insulator** *APPLIED PHYSICS LETTERS*

- Virwani, K., Harrison, S. E., Pushp, A., Topuria, T., Delenia, E., Rice, P., Kellock, A., Collins-McIntyre, L., Harris, J., Hesjedal, T., Parkin, S.
2014; 105 (24)
- **Nanoelectronic impedance detection of target cells.** *Biotechnology and bioengineering*
Esfandyarpour, R., Javanmard, M., Koochak, Z., Harris, J. S., Davis, R. W.
2014; 111 (6): 1161-1169
 - **Electrically driven subwavelength optical nanocircuits** *NATURE PHOTONICS*
Huang, K. C., Seo, M., Sarmiento, T., Huo, Y., Harris, J. S., Brongersma, M. L.
2014; 8 (3): 244-249
 - **Demonstration of a Ge/GeSn/Ge Quantum-Well Microdisk Resonator on Silicon: Enabling High-Quality Ge(Sn) Materials for Micro- and Nanophotonics.** *Nano letters*
Chen, R., Gupta, S., Huang, Y., Huo, Y., Rudy, C. W., Sanchez, E., Kim, Y., Kamins, T. I., Saraswat, K. C., Harris, J. S.
2014; 14 (1): 37-43
 - **Time-resolved photoluminescence studies of annealed 1.3- μm GaInNAsSb quantum wells.** *Nanoscale research letters*
Baranowski, M., Kudrawiec, R., Syperk, M., Misiewicz, J., Sarmiento, T., Harris, J. S.
2014; 9 (1): 81-?
 - **Surface-Normal Ge/SiGe Asymmetric Fabry-Perot Optical Modulators Fabricated on Silicon Substrates** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
Audet, R. M., Edwards, E. H., Balram, K. C., Claussen, S. A., Schaevitz, R. K., Tasyurek, E., Rong, Y., Fei, E. I., Kamins, T. I., Harris, J. S., Miller, D. A.
2013; 31 (24): 3995-4003
 - **Atomic layer deposition of Al₂O₃ on germanium-tin (GeSn) and impact of wet chemical surface pre-treatment** *APPLIED PHYSICS LETTERS*
Gupta, S., Chen, R., Harris, J. S., Saraswat, K. C.
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 - **Silicon-compatible high-hole-mobility transistor with an undoped germanium channel for low-power application** *APPLIED PHYSICS LETTERS*
Cho, S., Kang, I. M., Kim, K. R., Park, B., Harris, J. S.
2013; 103 (22)
 - **Simulation and fabrication of a new novel 3D injectable biosensor for high throughput genomics and proteomics in a lab-on-a-chip device.** *Nanotechnology*
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2013; 24 (46): 465301-?
 - **Simulation and fabrication of a new novel 3D injectable biosensor for high throughput genomics and proteomics in a lab-on-a-chip device.** *Nanotechnology*
Esfandyarpour, R., Esfandyarpour, H., Harris, J. S., Davis, R. W.
2013; 24 (46): 465301-?
 - **Single-cell photonic nanocavity probes.** *Nano letters*
Shambat, G., Kothapalli, S., Provine, J., Sarmiento, T., Harris, J., Gambhir, S. S., Vuckovic, J.
2013; 13 (11): 4999-5005
 - **Optical characterization of orientation-patterned GaP structures by micro reflectance difference spectroscopy** *JOURNAL OF APPLIED PHYSICS*
Lastras-Martinez, L. F., Herrera-Jasso, R., Ulloa-Castillo, N. A., Balderas-Navarro, R. E., Lastras-Martinez, A., Lin, A. C., Fejer, M. M., Harris, J. S.
2013; 114 (17)
 - **Ultra-Compact and Low-Loss Polarization Rotator Based on Asymmetric Hybrid Plasmonic Waveguide** *IEEE PHOTONICS TECHNOLOGY LETTERS*
Gao, L., Huo, Y., Harris, J. S., Zhou, Z.
2013; 25 (21): 2081-2084
 - **High-Efficiency Nanostructured Window GaAs Solar Cells.** *Nano letters*
Liang, D., Kang, Y., Huo, Y., Chen, Y., Cui, Y., Harris, J. S.
2013; 13 (10): 4850-4856
 - **Theoretical Analysis of GeSn Alloys as a Gain Medium for a Si-Compatible Laser** *IEEE JOURNAL OF SELECTED TOPICS IN QUANTUM ELECTRONICS*
Dutt, B., Lin, H., Sukhdeo, D. S., Vulovic, B. M., Gupta, S., Nam, D., Saraswat, K. C., Harris, J. S.
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- **Erratum: Publisher's Note: "Label-free electronic probing of nucleic acids and proteins at the nanoscale using the nanoneedle biosensor"** [*Biomicrofluidics* 7, 044114 (2013)]. *Biomicrofluidics*
Esfandyarpour, R., Javanmard, M., Koochak, Z., Esfandyarpour, H., Harris, J. S., Davis, R. W.
2013; 7 (4): 49901
- **Highly Selective Dry Etching of Germanium over Germanium-Tin (Ge_{1-x}Sn_x): A Novel Route for Ge_{1-x}Sn_x Nanostructure Fabrication.** *Nano letters*
Gupta, S., Chen, R., Huang, Y., Kim, Y., Sanchez, E., Harris, J. S., Saraswat, K. C.
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- **Real-time, continuous, fluorescence sensing in a freely-moving subject with an implanted hybrid VCSEL/CMOS biosensor** *BIOMEDICAL OPTICS EXPRESS*
O'Sullivan, T. D., Heitz, R. T., Parashurama, N., Barkin, D. B., Wooley, B. A., Gambhir, S. S., Harris, J. S., Levi, O.
2013; 4 (8): 1332-1341
- **Label-free electronic probing of nucleic acids and proteins at the nanoscale using the nanoneedle biosensor** *BIOMICROFLUIDICS*
Esfandyarpour, R., Javanmard, M., Koochak, Z., Esfandyarpour, H., Harris, J. S., Davis, R. W.
2013; 7 (4)
- **Cortical responses elicited by photovoltaic subretinal prostheses exhibit similarities to visually evoked potentials.** *Nature communications*
Mandel, Y., Goetz, G., Lavinsky, D., Huie, P., Mathieson, K., Wang, L., Kamins, T., Galambos, L., Manivanh, R., Harris, J., Palanker, D.
2013; 4: 1980-?
- **Two-step growth of high quality Bi₂Te₃ thin films on Al₂O₃ (0001) by molecular beam epitaxy** *APPLIED PHYSICS LETTERS*
Harrison, S. E., Li, S., Huo, Y., Zhou, B., Chen, Y. L., Harris, J. S.
2013; 102 (17)
- **Optical Emission of a Strained Direct-Band-Gap Ge Quantum Well Embedded Inside InGaAs Alloy Layers** *PHYSICAL REVIEW LETTERS*
Pavarelli, N., Ochalski, T. J., Murphy-Armando, F., Huo, Y., Schmidt, M., Huyet, G., Harris, J. S.
2013; 110 (17)
- **Material characterization of high Sn-content, compressively-strained GeSn epitaxial films after rapid thermal processing** *JOURNAL OF CRYSTAL GROWTH*
Chen, R., Huang, Y., Gupta, S., Lin, A. C., Sanchez, E., Kim, Y., Saraswat, K. C., Kamins, T. I., Harris, J. S.
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- **Enhancement of photoluminescence from GaInNAsSb quantum wells upon annealing: improvement of material quality and carrier collection by the quantum well** *JOURNAL OF PHYSICS-CONDENSED MATTER*
Baranowski, M., Kudrawiec, R., Latkowska, M., Syperek, M., Misiewicz, J., Sarmiento, T., Harris, J. S.
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2013; 1 (2): 48-53
- **Antiphase domain annihilation during growth of GaP on Si by molecular beam epitaxy** *JOURNAL OF CRYSTAL GROWTH*
Lin, A. C., Fejer, M. M., Harris, J. S.
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Edwards, E. H., Lever, L., Fei, E. T., Kamins, T. I., Ikonic, Z., Harris, J. S., Kelsall, R. W., Miller, D. A.
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