

LETTERS

Shortwave-infrared photoluminescence from $\text{Ge}_{1-x}\text{Sn}_x$ thin films on silicon

Seyed Amir Ghetmiri, Wei Du, Benjamin R. Conley, Aboozar Mosleh, Amjad Nazzal, Greg Sun, Richard A. Soref, Joe Margetis, John Tolle, Hameed A. Naseem and Shui-Qing Yu
J. Vac. Sci. Technol. B **32**, 060601 (2014); <http://dx.doi.org/10.1116/1.4897917>

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Atomic layer deposition $\text{TiO}_2\text{-Al}_2\text{O}_3$ stack: An improved gate dielectric on Ga-polar GaN metal oxide semiconductor capacitors

Daming Wei, James H. Edgar, Dayl P. Briggs, Scott T. Retterer, Bernadeta Srijanto, Dale K. Hensley and Harry M. Meyer III
J. Vac. Sci. Technol. B **32**, 060602 (2014); <http://dx.doi.org/10.1116/1.4897919>

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Origin of external quantum efficiency degradation in organic light-emitting diodes with a DC magnetron sputtered cathode

Hiroshi Fujimoto, Takuya Miyayama, Noriaki Sanada and Chihaya Adachi
J. Vac. Sci. Technol. B **32**, 060603 (2014); <http://dx.doi.org/10.1116/1.4897920>

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High-performance transparent, all-oxide nonvolatile charge trap memory transistor using In-Ga-Zn-O channel and ZnO trap layer

Jun Yong Bak and Sung Min Yoon
J. Vac. Sci. Technol. B **32**, 060604 (2014); <http://dx.doi.org/10.1116/1.4899180>

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REVIEW ARTICLES

Oxide-based chromogenic coatings and devices for energy efficient fenestration: Brief survey and update on thermochromics and electrochromics

Claes G. Granqvist
J. Vac. Sci. Technol. B **32**, 060801 (2014); <http://dx.doi.org/10.1116/1.4896489>

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ELECTRONIC & OPTOELECTRONIC MATERIALS, DEVICES & PROCESSING

Faceted sidewall etching of n-GaN on sapphire by photoelectrochemical wet processing

Yuanzheng Yue, Xiaodong Yan, Wenjun Li, Huili Grace Xing, Debdeep Jena and Patrick Fay
J. Vac. Sci. Technol. B **32**, 061201 (2014); <http://dx.doi.org/10.1116/1.4896592>

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Novel approach to improve heat dissipation of AlGaIn/GaN high electron mobility transistors with a Cu filled via under device active area

Ya-Hsi Hwang, Tsung-Sheng Kang, Fan Ren and Stephen J. Pearton

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ELECTRONIC ... OPTOELECTRONIC MATERIALS, DEVICES & PROCESSING

Multilayer MoS₂ transistors enabled by a facile dry-transfer technique and thermal annealing

Rui Yang, Xuqian Zheng, Zenghui Wang, Christopher J. Miller and Philip X.-L. Feng

J. Vac. Sci. Technol. B **32**, 061203 (2014); <http://dx.doi.org/10.1116/1.4898117>

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ELECTRONIC & OPTOELECTRONIC MATERIALS, DEVICES & PROCESSING

Deep ultraviolet photopumped stimulated emission from partially relaxed AlGaIn multiple quantum well heterostructures grown on sapphire substrates

Fatima Asif, Mohamed Lachab, Antwon Coleman, Ifkhar Ahmad, Bin Zhang, Vinod Adivarahan and Asif Khan

J. Vac. Sci. Technol. B **32**, 061204 (2014); <http://dx.doi.org/10.1116/1.4898694>

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Simulation of a rising sun magnetron employing a faceted cathode with a continuous current source

Sulmer Fernandez-Gutierrez, Jim Browning, Ming-Chieh Lin, David N. Smithe and Jack Watrous

J. Vac. Sci. Technol. B **32**, 061205 (2014); <http://dx.doi.org/10.1116/1.4900636>

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Ordered array of Ga droplets on GaAs(001) by local anodic oxidation

Elisa M. Sala, Monica Bollani, Sergio Bietti, Alexey Fedorov, Luca Esposito and Stefano Sanguinetti

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Thermal treatment induced change of diluted oxygen doped ZnTe films grown by metal-organic chemical vapor deposition

Ran Gu, Shulin Gu, Jiandong Ye, Shimin Huang, Shunming Zhu, Kun Tang, Kang Zhen and Youdou Zheng

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Negative gate-bias instability of ZnO thin-film transistors studied by current–voltage and capacitance–voltage analyses

Characteristics of electron emission of Al-Al₂O₃-Ti/Au diode with a new double-layer insulator

Yihua Hu, Xiaoning Zhang, Tao Xue and Chunliang Liu

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58TH INTERNATIONAL CONFERENCE ON ELECTRON, ION, AND PHOTON BEAM TECHNOLOGY AND NANOFABRICATION**EIPBN Review Articles****Scanning probes in nanostructure fabrication**

Marcus Kaestner, Tzvetan Ivanov, Andreas Schuh, Ahmad Ahmad, Tihomir Angelov, Yana Krivoshapkina, Matthias Budden, Manuel Hofer, Steve Lenk, Jens-Peter Zoellner, Ivo W. Rangelow, Alexander Reum, Elshad Guliyev, Mathias Holz and Nikolay Nikolov

J. Vac. Sci. Technol. B **32**, 06F101 (2014); <http://dx.doi.org/10.1116/1.4897500>[+ VIEW DESCRIPTION](#)

Directed- and Biomolecular-Self-Assembly**Programmed self-assembly of microscale components using biomolecular recognition through the avidin–biotin interaction**

Trevor Olsen, Jason Ng, Maria Stepanova and Steven K. Dew

J. Vac. Sci. Technol. B **32**, 06F301 (2014); <http://dx.doi.org/10.1116/1.4893075>[+ VIEW DESCRIPTION](#)

Electro-Mechanical Applications (MEMS/NEMS)**RF sputtering of polycrystalline (100), (002), and (101) oriented AlN on an epitaxial 3C-SiC (100) on Si(100) substrate**

Abid Iqbal, Kien Chaik, Glen Walker, Alan Iacopi, Faisal Mohd-Yasin and Sima Dimitrijevic

J. Vac. Sci. Technol. B **32**, 06F401 (2014); <http://dx.doi.org/10.1116/1.4900418>[+ VIEW DESCRIPTION](#)

Electron- or Ion-Beam Lithography**Three-dimensional nanofabrication using hydrogen silsesquioxane/poly(methylmethacrylate) bilayer resists**

Hyung Wan Do, Jae-Byum Chang and Karl K. Berggren

J. Vac. Sci. Technol. B **32**, 06F501 (2014); <http://dx.doi.org/10.1116/1.4893659>[+ VIEW DESCRIPTION](#)

An information theoretic perspective on e-beam direct-write as complementary lithography

Serap A. Savari

J. Vac. Sci. Technol. B **32**, 06F502 (2014); <http://dx.doi.org/10.1116/1.4894459>[+ VIEW DESCRIPTION](#)

Temperature dependent effective process blur and its impact on exposure latitude and

lithographic targets using e-beam simulation and proximity effect correction

Chad M. Eichfeld and Gerald G. Lopez

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Multistep Aztec profiles by grayscale electron beam lithography for angle-resolved microspectrometer applications

Sichao Zhang, Jinhai Shao, Jianpeng Liu, Chen Xu, Yaqi Ma, Yifang Chen, Nit Taksatorn and Yan Sun

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Minimization of line edge roughness and critical dimension error in electron-beam lithography

Xinyu Zhao, Soo-Young Lee, Jin Choi, Sang-Hee Lee, In-Kyun Shin and Chan-Uk Jeon

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Fabrication of polydimethylsiloxane microlens arrays on a plastic film by proton beam writing

Hijiri Kato, Junichi Takahashi and Hiroyuki Nishikawa

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Lift-off with solvent for negative resist using low energy electron beam exposure

Ripon Kumar Dey and Bo Cui

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Determination and analysis of minimum dose for achieving vertical sidewall in electron-beam lithography

Xinyu Zhao, Qing Dai, Soo-Young Lee, Jin Choi, Sang-Hee Lee, In-Kyun Shin and Chan-Uk Jeon

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Improved alignment algorithm for electron beam lithography

Stephen Thoms, Yuan Zhang and John M. R. Weaver

J. Vac. Sci. Technol. B **32**, 06F509 (2014); <http://dx.doi.org/10.1116/1.4901015>[+ VIEW DESCRIPTION](#)

Experimental verification of achieving vertical sidewalls for nanoscale features in electron-beam lithographySoo-Young Lee, Jin Choi, Sang-Hee Lee, In-Kyun Shin, Chan-Uk Jeon and Sang-Chul JeonJ. Vac. Sci. Technol. B **32**, 06F510 (2014); <http://dx.doi.org/10.1116/1.4901171>

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Electron- or Ion-Beam Lithography

Hydrogen silsesquioxane on SOI proximity and microlithography effects correction from a single 1D characterization sample

Justin R. Bickford, Gerald Lopez, Nikola Belic and Ulrich Hofmann

J. Vac. Sci. Technol. B **32**, 06F511 (2014); <http://dx.doi.org/10.1116/1.4901567>

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Electronic Applications

Inelastic electron tunneling spectroscopy for molecular detection

Yasaman Hamidi Zadeh and Zahid A. K. Durrani

J. Vac. Sci. Technol. B **32**, 06F601 (2014); <http://dx.doi.org/10.1116/1.4897137>

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Emerging Methods

Mobility based 3D simulation of selective, viscoelastic polymer reflow using surface evolver

Robert Kirchner and Helmut Schift

J. Vac. Sci. Technol. B **32**, 06F701 (2014); <http://dx.doi.org/10.1116/1.4896480>

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Built-in lens mask lithography (challenge for high-definition lens-less lithography)

Naoki Ueda, Masaru Sasago, Hisao Kikuta, Hiroaki Kawata and Yoshihiko Hirai

J. Vac. Sci. Technol. B **32**, 06F702 (2014); <http://dx.doi.org/10.1116/1.4900604>

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Extreme Ultraviolet Lithography

Experimental measurements of telecentricity errors in high-numerical-aperture extreme ultraviolet mask images

Sudharshanan Raghunathan, Obert R. Wood II, Pawitter Mangat, Erik Verduijn, Vicky Philipsen, Eric Hendrickx, Rik Jonckheere, Kenneth A. Goldberg, Markus P. Benk, Patrick Kearney, Zachary Levinson and Bruce W. Smith

J. Vac. Sci. Technol. B **32**, 06F801 (2014); <http://dx.doi.org/10.1116/1.4901876>

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Electron or Ion Sources and Systems

Photoemission lifetime of a negative electron affinity gallium nitride photocathode

Tomohiro Nishitani, Masao Tabuchi, Hiroshi Amano, Takuya Maekawa, Makoto Kuwahara and Takashi Meguro

J. Vac. Sci. Technol. B **32**, 06F901 (2014); <http://dx.doi.org/10.1116/1.4901566>

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Ion-Beam- and Electron-Beam-Induced Processing

Mechanism and applications of helium transmission milling in thin membranes

Shida Tan, Kate Klein, Darryl Shima, Rick Livengood, Eva Mutunga and András Vladár
J. Vac. Sci. Technol. B **32**, 06FA01 (2014); <http://dx.doi.org/10.1116/1.4900728>

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Maskless High-Throughput Lithography**Carbonaceous contamination growth induced by resist outgassing under e-beam exposure**

Marie-Line Pourteau, Armel-Petit Mebiene-Engohang, Jean-Christophe Marusic, Laurent Pain, Sylvain David, Marc Smits and Marco Wieland
J. Vac. Sci. Technol. B **32**, 06FB01 (2014); <http://dx.doi.org/10.1116/1.4901415>

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Microscopy and Nanometrology**Simulation of insulating-layer charging on a conductive substrate irradiated by ion and electron beams**

Kaoru Ohya
J. Vac. Sci. Technol. B **32**, 06FC01 (2014); <http://dx.doi.org/10.1116/1.4896337>

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***In-situ* visualization of local magnetic fields using low-energy electron beam in scanning electron microscope**

Konomi Yoshida, Katsuhisa Murakami and Jun-ichi Fujita
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Integrating focused ion beam–scanning electron microscope with confocal Raman microscope into a single instrument

Jaroslav Jiruše, Martin Haničinec, Miloslav Havelka, Olaf Hollricher, Wolfram Ibach and Peter Spizig
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Cross-sectional atomic force microscope in scanning electron microscope

Byong Chon Park, Woon Song, Dal Hyun Kim, Ju-Yeop Lee, Jaewan Hong and Jin Seung Kim
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High-voltage energy dispersive x-ray spectrometry using a low-energy primary beam

Ying Wu, Dimitri Klyachko, Scott Davilla, James Spallas, Scott Indermuehle and Lawrence P. Muray
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Medical and Bioscience Applications

Iron-doped apatite nanoparticles for improvement of phage therapy

Jessica M. Andriolo, Ryan M. Hensleigh, Casey A. McConnell, Marisa Pedulla, Katie Hailer, Rajendra Kasinath, Gary Wyss, William Gleason and Jack L. Skinner

J. Vac. Sci. Technol. B **32**, 06FD01 (2014); <http://dx.doi.org/10.1116/1.4894460>

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Clinical probe utilizing surface enhanced Raman scattering

Jeonghwan Kim, Dooyoung Hah, Theda Daniels-Race and Martin Feldman

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Nanoscaffold's stiffness affects primary cortical cell network formation

Sijia Xie, Bart Schurink, Floor Wolbers, Regina Luttmann and Gerco Hassink

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Nanophotonics and Plasmonics

Ultrahigh NA, high aspect ratio interference lithography with resonant dielectric underlayers

Sam Lowrey, Levi Bourke, Boyang Ding and Richard Blaikie

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Block copolymer self assembly for design and vapor-phase synthesis of nanostructured antireflective surfaces

Atikur Rahman, Mingzhao Liu and Charles T. Black

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Evanescence-coupled antireflection coatings for hyper-numerical aperture immersion lithography

Levi Bourke and Richard J. Blaikie

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Full-color reflective display system based on high contrast gratings

He Liu, Yuhan Yao, Yifei Wang and Wei Wu

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Nanofabrication of Novel Materials Including Graphene

Transfer patterning of large-area graphene nanomesh via holographic lithography and plasma etching

Junjun Ding, Ke Du, Ishan Wathuthanthri, Chang-Hwan Choi, Frank T. Fisher and Eui-Hyeok Yang

J. Vac. Sci. Technol. B **32**, 06FF01 (2014); <http://dx.doi.org/10.1116/1.4895667>

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Effects of MoS₂ thickness and air humidity on transport characteristics of plasma-doped MoS₂ field-effect transistors

Mikai Chen, Sungjin Wi, Hongsuk Nam, Greg Priessnitz and Xiaogan Liang

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Solid-state fabrication of ultrathin freestanding carbon nanotube–graphene hybrid structures for field emission applications

Hai Hoang Van and Mei Zhang

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Nanoimprint and Roll-to-Roll Manufacturing

Effect of residual stress on replication fidelity with nanoimprint

Marc Papenheim, Khalid Dhima, Si Wang, Christian Steinberg, Hella-Christin Scheer, Jens Saupe, Maik Schönfeld and Jürgen Grimm

J. Vac. Sci. Technol. B **32**, 06FG01 (2014); <http://dx.doi.org/10.1116/1.4895794>

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Computational study of the demolding process in nanoimprint lithography

Rina Takai, Masaaki Yasuda, Takamitsu Tochino, Hiroaki Kawata and Yoshihiko Hirai

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Thermal roll-to-roll imprinted nanogratings on plastic film

Noriyuki Unno, Tapio Mäkelä and Jun Taniguchi

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Fabrication of high-contrast gratings for a parallel spectrum splitting dispersive element in a concentrated photovoltaic system

Yuhan Yao, He Liu and Wei Wu

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Guided wrinkling with nanoimprinted SU-8 surfaces

Christian Steinberg, Daniel Blenskens, Khalid Dhima, Si Wang, Marc Papenheim, Hella-Christin Scheer, Joachim Zajadacz and Klaus Zimmer

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Fabrication of wafer-scale nanopatterned sapphire substrate by hybrid nanoimprint lithography

Xu Guo, Jing Hu, Zhe Zhuang, Mengmeng Deng, Feixiang Wu, Xie Li, Bin Liu, Changsheng Yuan, Haixiong Ge, Feng Li and Yanfeng Chen

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High resolution soft mold for UV-curing nanoimprint lithography using an oxygen insensitive degradable material

Xin Hu, Jingrui Huang, Ronghua Gu, Yushuang Cui, Changsheng Yuan, Haixiong Ge and Yanfeng Chen

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Impact of resist shrinkage on the template release process in nanoimprint lithography

Takamitsu Tochino, Takahiro Shiotsu, Kimiaki Uemura, Masaaki Yasuda, Hiroaki Kawata and Yoshihiko Hirai

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Fabrication of antireflection structure film by roll-to-roll ultraviolet nanoimprint lithography

Masatoshi Moro, Jun Taniguchi and Shin Hiwasa

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Silicon nanopillar anodes for lithium-ion batteries using nanoimprint lithography with flexible molds

Eric Mills, John Cannarella, Qi Zhang, Shoham Bhadra, Craig B. Arnold and Stephen Y. Chou

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Processing & Pattern Transfer**Vertical directionality-controlled metal-assisted chemical etching for ultrahigh aspect ratio nanoscale structures**

Richard C. Tiberio, Michael J. Rooks, Chieh Chang, Clifford F. Knollenberg, Elizabeth A. Dobisz and Anne Sakdinawat

J. Vac. Sci. Technol. B **32**, 06FI01 (2014); <http://dx.doi.org/10.1116/1.4898199>

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Simulation and Modelling of Nanofabrication

Optical proximity correction using holographic imaging technique

Artak Isoyan and Lawrence S. Melvin III

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