LETTERS

Microscopic silicon-based lateral high-aspect-ratio structures for thin film conformality analysis

Feng Gao, Sanna Arpiainen and Riikka L. Puurunen

J. Vac. Sci. Technol. A **33**, 010601 (2015); http://dx.doi.org/10.1116/1.4903941

+ VIEW DESCRIPTION

Aperture-time of oxygen-precursor for minimum silicon incorporation into the interface-layer in atomic layer deposition-grown HfO_2/Si nanofilms

Pierre Giovanni Mani-Gonzalez, Milton Oswaldo Vazquez-Lepe and Alberto Herrera-Gomez

J. Vac. Sci. Technol. A **33**, 010602 (2015); http://dx.doi.org/10.1116/1.4904496

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REVIEW ARTICLES

Atomic layer deposition grown MO_x thin films for solar water splitting: Prospects and challenges

Trilok Singh, Thomas Lehnen, Tessa Leuning and Sanjay Mathur

J. Vac. Sci. Technol. A **33**, 010801 (2015); http://dx.doi.org/10.1116/1.4904729

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BRIEF REPORTS AND COMMENTS

New Zr-containing precursors for the atomic layer deposition of ZrO_2

Keith Huynh, Scott A. Laneman, Ravi Laxman, Peter G. Gordon and Seán T. Barry

J. Vac. Sci. Technol. A **33**, 013001 (2015); http://dx.doi.org/10.1116/1.4901454

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SHOP NOTES

Scalable control program for multiprecursor flow-type atomic layer deposition system

Sathees Kannan Selvaraj and Christos G. Takoudis

J. Vac. Sci. Technol. A **33**, 013201 (2015); http://dx.doi.org/10.1116/1.4893774

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ATOMIC LAYER DEPOSITION (ALD)

Atomic layer deposited lithium aluminum oxide: (In)dependency of film properties from pulsing sequence

Ville Miikkulainen, Ola Nilsen, Han Li, Sean W. King, Mikko Laitinen, Timo Sajavaara andHelmer Fjellvåg

J. Vac. Sci. Technol. A **33**, 01A101 (2015); http://dx.doi.org/10.1116/1.4890006

+ VIEW DESCRIPTION

ZnO/porous-Si and TiO_2/porous-Si nanocomposite nanopillars
Dong Wang, Yong Yan, Peter Schaaf, Thomas Sharp, Sven Schönherr, Carsten Ronning and Ran Ji
J. Vac. Sci. Technol. A **33**, 01A102 (2015); http://dx.doi.org/10.1116/1.4891104

+ VIEW DESCRIPTION

High aspect ratio iridescent three-dimensional metal–insulator–metal capacitors using atomic layer deposition
Micheal Burke, Alan Blake, Vladimir Djara, Dan O'Connell, Ian M. Povey, Karim Cherkaoui,Scott Monaghan, Jim Scully, Richard Murphy, Paul K. Hurley, Martyn E. Pemble and Aidan J. Quinn
J. Vac. Sci. Technol. A **33**, 01A103 (2015); http://dx.doi.org/10.1116/1.4891319

+ VIEW DESCRIPTION

Modeling precursor diffusion and reaction of atomic layer deposition in porous structures
Thomas Keuter, Norbert Heribert Menzler, Georg Mauer, Frank Vondahlen, Robert Vaßen and Hans Peter Buchkremer
J. Vac. Sci. Technol. A **33**, 01A104 (2015); http://dx.doi.org/10.1116/1.4892385

+ VIEW DESCRIPTION

Low temperature atomic layer deposited ZnO photo thin film transistors
Feyza B. Oruc, Levent E. Aygun, Inci Donmez, Necmi Biyikli, Ali K. Okyay and Hyun Yong Yu
J. Vac. Sci. Technol. A **33**, 01A105 (2015); http://dx.doi.org/10.1116/1.4892939

+ VIEW DESCRIPTION

Fracture properties of atomic layer deposited aluminum oxide free-standing membranes
Maria Berdova, Oili M. E. Ylivaara, Ville Rontu, Pekka T. Törmä, Riikka L. Puurunen andSami Franssila
J. Vac. Sci. Technol. A **33**, 01A106 (2015); http://dx.doi.org/10.1116/1.4893769

+ VIEW DESCRIPTION

Electrical behavior of atomic layer deposited high quality SiO_2 gate dielectric
Sangram K. Pradhan, Ekembu K. Tanyi, Jonathan R. Skuza, Bo Xiao and Aswini K. Pradhan
J. Vac. Sci. Technol. A **33**, 01A107 (2015); http://dx.doi.org/10.1116/1.4895107

+ VIEW DESCRIPTION

Thermal chemistry of the Cu-KI5 atomic layer deposition precursor on a copper surface
Qiang Ma and Francisco Zaera
J. Vac. Sci. Technol. A **33**, 01A108 (2015); http://dx.doi.org/10.1116/1.4896940

+ VIEW DESCRIPTION

Self-aligned process for forming microlenses at the tips of vertical silicon nanowires by atomic layer deposition

Yaping Dan, Kaixiang Chen and Kenneth B. Crozier

J. Vac. Sci. Technol. A **33**, 01A109 (2015); http://dx.doi.org/10.1116/1.4897221

+ VIEW DESCRIPTION

Enhanced photoresponse of conformal TiO_2/Ag nanorod array-based Schottky photodiodes fabricated via successive glancing angle and atomic layer deposition

Ali Haider, Hilal Cansizoglu, Mehmet Fatih Cansizoglu, Tansel Karabacak, Ali Kemal Okyay and Necmi Biyikli

J. Vac. Sci. Technol. A **33**, 01A110 (2015); http://dx.doi.org/10.1116/1.4898203

+ VIEW DESCRIPTION

Initial growth, refractive index, and crystallinity of thermal and plasma-enhanced atomic layer deposition AlN films

Hao Van Bui, Frank B. Wiggers, Anubha Gupta, Minh D. Nguyen, Antonius A. I. Aarnink,Michel P. de Jong and Alexey Y. Kovalgin

J. Vac. Sci. Technol. A **33**, 01A111 (2015); http://dx.doi.org/10.1116/1.4898434

+ VIEW DESCRIPTION

Systematic study of trimethyl aluminum infiltration in polyethylene terephthalate and its effect on the mechanical properties of polyethylene terephthalate fibers

Richard P. Padbury and Jesse S. Jur

J. Vac. Sci. Technol. A **33**, 01A112 (2015); http://dx.doi.org/10.1116/1.4898435

+ VIEW DESCRIPTION

Infrared study on room-temperature atomic layer deposition of HfO_2 using tetrakis(ethylmethylamino)hafnium and remote plasma-excited oxidizing agents

Kensaku Kanomata, Hisashi Ohba, P. Pungboon Pansila, Bashir Ahmmad, Shigeru Kubota, Kazuhiro Hirahara and Fumihiko Hirose

J. Vac. Sci. Technol. A **33**, 01A113 (2015); http://dx.doi.org/10.1116/1.4899181

+ VIEW DESCRIPTION

Impact of surface morphology of Si substrate on performance of Si/ZnO heterojunction devices grown by atomic layer deposition technique

Purnima Hazra, Satyendra Kumar Singh and Satyabrata Jit

J. Vac. Sci. Technol. A **33**, 01A114 (2015); http://dx.doi.org/10.1116/1.4900719

+ VIEW DESCRIPTION

Molecular layer deposition of alucone films using trimethylaluminum and hydroquinone

Devika Choudhury, Shaibal K. Sarkar and Neha Mahuli

J. Vac. Sci. Technol. A **33**, 01A115 (2015); http://dx.doi.org/10.1116/1.4900934

+ VIEW DESCRIPTION

ATOMIC LAYER DEPOSITION (ALD)

Effects of rapid thermal annealing on the properties of HfO_2/La_2O_3 nanolaminate films deposited by plasma enhanced atomic layer deposition

Duo Cao, Xinhong Cheng, Li Zheng, Zhongjian Wang, Dawei Xu, Chao Xia, Lingyan Shen,Qian Wang, Yuehui Yu and DaShen Shen

J. Vac. Sci. Technol. A **33**, 01A116 (2015); http://dx.doi.org/10.1116/1.4900935

+ VIEW DESCRIPTION

Conductivity and touch-sensor application for atomic layer deposition ZnO and Al:ZnO on nylon nonwoven fiber mats

William J. Sweet III, Christopher J. Oldham and Gregory N. Parsons

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+ VIEW DESCRIPTION

Role of the $(Ta/Nb)O_x/Al_2O_3$ interface on the flatband voltage shift for $Al_2O_3/(Ta/Nb)O_x/Al_2O_3$ multilayer charge trap capacitors

Toshihide Nabatame, Akihiko Ohi, Kazuhiro Ito, Makoto Takahashi and Toyohiro Chikyo

J. Vac. Sci. Technol. A **33**, 01A118 (2015); http://dx.doi.org/10.1116/1.4901231

+ VIEW DESCRIPTION

Integration of molecular-layer-deposited aluminum alkoxide interlayers into inorganic nanolaminate barriers for encapsulation of organic electronics with improved stress resistance

Christoph Hossbach, Frederik Nehm, Aarti Singh, Hannes Klumbies, Dustin Fischer,Claudia Richter, Uwe Schroeder, Matthias Albert, Lars Müller-Meskamp, Karl Leo, Thomas Mikolajick and Johann W. Bartha

J. Vac. Sci. Technol. A **33**, 01A119 (2015); http://dx.doi.org/10.1116/1.4901232

+ VIEW DESCRIPTION

Carbon-induced trapping levels in oxide dielectrics

Hiral D. Tailor, John L. Lyons, Minseok Choi, Anderson Janotti and Chris G. Van de Walle

J. Vac. Sci. Technol. A **33**, 01A120 (2015); http://dx.doi.org/10.1116/1.4901234

+ VIEW DESCRIPTION

Studies on atomic layer deposition of IRMOF-8 thin films

Leo D. Salmi, Mikko J. Heikkilä, Marko Vehkamäki, Esa Puukilainen, Mikko Ritala and Timo Sajavaara

J. Vac. Sci. Technol. A **33**, 01A121 (2015); http://dx.doi.org/10.1116/1.4901455

+ VIEW DESCRIPTION

Thin film analysis by low-energy ion scattering by use of TRBS simulations

Philipp Brüner, Thomas Grehl, Hidde Brongersma, Blanka Detlefs, Emmanuel Nolot,Helen Grampeix, Erich Steinbauer and Peter Bauer

J. Vac. Sci. Technol. A **33**, 01A122 (2015); http://dx.doi.org/10.1116/1.4901451

+ VIEW DESCRIPTION

Effect of substrate pretreatments on the atomic layer deposited Al_2O_3 passivation quality

Yameng Bao, Shuo Li, Guillaume von Gastrow, Päivikki Repo, Hele Savin and Matti Putkonen

J. Vac. Sci. Technol. A **33**, 01A123 (2015); http://dx.doi.org/10.1116/1.4901456

+ VIEW DESCRIPTION

Infrared and thermoelectric power generation in thin atomic layer deposited Nb-doped TiO_2 films

Harkirat S. Mann, Brian N. Lang, Yosyp Schwab, Janne-Petteri Niemelä, Maarit Karppinen and Giovanna Scarel

J. Vac. Sci. Technol. A **33**, 01A124 (2015); http://dx.doi.org/10.1116/1.4901457

+ VIEW DESCRIPTION

Atomic layer deposition of magnesium fluoride via bis(ethylcyclopentadienyl)magnesium and anhydrous hydrogen fluoride

John Hennessy, April D. Jewell, Frank Greer, Michael C. Lee and Shouleh Nikzad

J. Vac. Sci. Technol. A **33**, 01A125 (2015); http://dx.doi.org/10.1116/1.4901808

+ VIEW DESCRIPTION

Thermal MEMS actuator operation in aqueous media/seawater: Performance enhancement through atomic layer deposition post processing of PolyMUMPs devices

Stephan Warnat, Cameron Forbrigger, Ted Hubbard, Adam Bertuch and Ganesh Sundaram

J. Vac. Sci. Technol. A **33**, 01A126 (2015); http://dx.doi.org/10.1116/1.4902081

+ VIEW DESCRIPTION

Dysprosium oxide and dysprosium-oxide-doped titanium oxide thin films grown by atomic layer deposition

Aile Tamm, Jekaterina Kozlova, Lauri Aarik, Jaan Aarik, Kaupo Kukli, Joosep Link andRaivo Stern

J. Vac. Sci. Technol. A **33**, 01A127 (2015); http://dx.doi.org/10.1116/1.4902079

+ VIEW DESCRIPTION

Nucleation and growth of ZnO on PMMA by low-temperature atomic layer deposition

Mari Napari, Jari Malm, Roope Lehto, Jaakko Julin, Kai Arstila, Timo Sajavaara and Manu Lahtinen

J. Vac. Sci. Technol. A **33**, 01A128 (2015); http://dx.doi.org/10.1116/1.4902326

+ VIEW DESCRIPTION

Atomic layer deposition synthesis and evaluation of core–shell Pt-WC electrocatalysts

Irene J. Hsu, Jingguang G. Chen, Xiaoqiang Jiang and Brian G. Willis

J. Vac. Sci. Technol. A **33**, 01A129 (2015); http://dx.doi.org/10.1116/1.4902085

+ VIEW DESCRIPTION

Atomic layer deposition of ultrathin platinum films on tungsten atomic layer deposition adhesion layers: Application to high surface area substrates

Joel W. Clancey, Andrew S. Cavanagh, Ratandeep S. Kukreja, Anusorn Kongkanand andSteven M. George

J. Vac. Sci. Technol. A **33**, 01A130 (2015); http://dx.doi.org/10.1116/1.4901459

+ VIEW DESCRIPTION

Atmospheric pressure plasma enhanced spatial ALD of silver

Fieke J. van den Bruele, Mireille Smets, Andrea Illiberi, Yves Creyghton, Pascal Buskens,Fred Roozeboom and Paul Poodt

J. Vac. Sci. Technol. A **33**, 01A131 (2015); http://dx.doi.org/10.1116/1.4902561

+ VIEW DESCRIPTION

Spatial atomic layer deposition on flexible substrates using a modular rotating cylinder reactor

Kashish Sharma, Robert A. Hall and Steven M. George

J. Vac. Sci. Technol. A **33**, 01A132 (2015); http://dx.doi.org/10.1116/1.4902086

+ VIEW DESCRIPTION

Characterization of Ru thin films from a novel CVD/atomic layer deposition precursor “Rudense” for capping layer of Cu interconnects

Atsushi Maniwa, Hirokazu Chiba, Kazuhisa Kawano, Naoyuki Koiso, Hiroyuki Oike, Taishi Furukawa and Ken-ichi Tada

J. Vac. Sci. Technol. A **33**, 01A133 (2015); http://dx.doi.org/10.1116/1.4902560

+ VIEW DESCRIPTION

Characterization of ZnO film grown on polycarbonate by atomic layer deposition at low temperature

Gyeong Beom Lee, Gwon Deok Han, Joon Hyung Shim and Byoung-Ho Choi

J. Vac. Sci. Technol. A **33**, 01A134 (2015); http://dx.doi.org/10.1116/1.4903270

+ VIEW DESCRIPTION

Atomic layer deposition of epitaxial layers of anatase on strontium titanate single crystals: Morphological and photoelectrochemical characterization

Theodore J. Kraus, Alexander B. Nepomnyashchii and B. A. Parkinson

J. Vac. Sci. Technol. A **33**, 01A135 (2015); http://dx.doi.org/10.1116/1.4902328

+ VIEW DESCRIPTION

ATOMIC LAYER DEPOSITION (ALD)

Improved thermal stability and electrical properties of atomic layer deposited HfO_2/AlN high-k gate dielectric stacks on GaAs
Yan-Qiang Cao, Xin Li, Lin Zhu, Zheng-Yi Cao, Di Wu and Ai-Dong Li
J. Vac. Sci. Technol. A **33**, 01A136 (2015); http://dx.doi.org/10.1116/1.4903367

+ VIEW DESCRIPTION

Designing high performance precursors for atomic layer deposition of silicon oxide
Anupama Mallikarjunan, Haripin Chandra, Manchao Xiao, Xinjian Lei, Ronald M. Pearlstein, Heather R. Bowen, Mark L. O'Neill, Agnes Derecskei-Kovacs and Bing Han
J. Vac. Sci. Technol. A **33**, 01A137 (2015); http://dx.doi.org/10.1116/1.4903275

+ VIEW DESCRIPTION

Enhancement of photoluminescence properties in ZnO/AlN bilayer heterostructures grown by atomic layer deposition
Shang-Bin Zhu, Hong-Liang Lu, Qiu-Xiang Zhang, Yuan Zhang, Qing-Qing Sun, Peng Zhou, Shi-Jin Ding and David Wei Zhang
J. Vac. Sci. Technol. A **33**, 01A138 (2015); http://dx.doi.org/10.1116/1.4903935

+ VIEW DESCRIPTION

Atomic layer deposition of aluminum sulfide thin films using trimethylaluminum and hydrogen sulfide
Soumyadeep Sinha, Neha Mahuli and Shaibal K. Sarkar
J. Vac. Sci. Technol. A **33**, 01A139 (2015); http://dx.doi.org/10.1116/1.4903951

+ VIEW DESCRIPTION

Thermodynamics and kinetic behaviors of thickness-dependent crystallization in high-k thin films deposited by atomic layer deposition
Xianglong Nie, Fei Ma, Dayan Ma and Kewei Xu
J. Vac. Sci. Technol. A **33**, 01A140 (2015); http://dx.doi.org/10.1116/1.4903946

+ VIEW DESCRIPTION

Undoped TiO_2 and nitrogen-doped TiO_2 thin films deposited by atomic layer deposition on planar and architectured surfaces for photovoltaic applications
Liang Tian, Adurey Soum-Glaude, Fabien Volpi, Luc Salvo, Grégory Berthomé, Stéphane Coindeau, Arnaud Mantoux, Raphaël Boichot, Sabine Lay, Virginie Brizé, Elisabeth Blanquet, Gaël Giusti and Daniel Bellet
J. Vac. Sci. Technol. A **33**, 01A141 (2015); http://dx.doi.org/10.1116/1.4904025

+ VIEW DESCRIPTION

Role of atomic layer deposited aluminum oxide as oxidation barrier for silicon based materials
Giuseppe Fiorentino, Bruno Morana, Salvatore Forte and Pasqualina Maria Sarro
J. Vac. Sci. Technol. A **33**, 01A142 (2015); http://dx.doi.org/10.1116/1.4904208

+ VIEW DESCRIPTION

Electronic and optical device applications of hollow cathode plasma assisted atomic layer deposition based GaN thin films
Sami Bolat, Burak Tekcan, Cagla Ozgit-Akgun, Necmi Biyikli and Ali Kemal Okyay
J. Vac. Sci. Technol. A **33**, 01A143 (2015); http://dx.doi.org/10.1116/1.4903365

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Thermal and plasma enhanced atomic layer deposition of TiO_2: Comparison of spectroscopic and electric properties
Chittaranjan Das, Karsten Henkel, Massimo Tallarida, Dieter Schmeißer, Hassan Gargouri, Irina Kärkkänen, Jessica Schneidewind, Bernd Gruska and Michael Arens
J. Vac. Sci. Technol. A **33**, 01A144 (2015); http://dx.doi.org/10.1116/1.4903938

+ VIEW DESCRIPTION

Atomic layer deposition of ultrathin blocking layer for low-temperature solid oxide fuel cell on nanoporous substrate
Wonjong Yu, Sanghoon Ji, Gu Young Cho, Seungtak Noh, Waqas Hassan Tanveer,Jihwan An and Suk Won Cha
J. Vac. Sci. Technol. A **33**, 01A145 (2015); http://dx.doi.org/10.1116/1.4904206

+ VIEW DESCRIPTION

Improved film quality of plasma enhanced atomic layer deposition SiO_2 using plasma treatment cycle
Haiwon Kim, Ilsub Chung, Seokyun Kim, Seungwoo Shin, Wooduck Jung, Ryong Hwang,Choonsik Jeong and Hanna Hwang
J. Vac. Sci. Technol. A **33**, 01A146 (2015); http://dx.doi.org/10.1116/1.4904147

+ VIEW DESCRIPTION

Influence of PEDOT:PSS on the effectiveness of barrier layers prepared by atomic layer deposition in organic light emitting diodes
Barbara Wegler, Oliver Schmidt and Bernhard Hensel
J. Vac. Sci. Technol. A **33**, 01A147 (2015); http://dx.doi.org/10.1116/1.4904500

+ VIEW DESCRIPTION

Enhancing the platinum atomic layer deposition infiltration depth inside anodic alumina nanoporous membrane
Amit Vaish, Susan Krueger, Michael Dimitriou, Charles Majkrzak, David J. Vanderah, Lei Chen and Klaus Gawrisch
J. Vac. Sci. Technol. A **33**, 01A148 (2015); http://dx.doi.org/10.1116/1.4904398

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Effect of incubation time on preparation of continuous and flat Ru films
Hiroshi Funakubo, Takahisa Shiraishi, Takahiro Oikawa, Masaki Hirano, Hirokazu Chiba and Kazuhisa Kawano

J. Vac. Sci. Technol. A **33**, 01A149 (2015); http://dx.doi.org/10.1116/1.4904494

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Atomic layer deposition of titanium sulfide and its application in extremely thin absorber solar cells
Neha Mahuli and Shaibal K. Sarkar
J. Vac. Sci. Technol. A **33**, 01A150 (2015); http://dx.doi.org/10.1116/1.4904497

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Temperature effect on zinc oxysulfide-Zn(O,S) films synthesized by atomic layer deposition for Cu(In,Ga)Se_2 solar cells
Cathy Bugot, Nathanaëlle Schneider, Marie Jubault, Daniel Lincot and Frédérique Donsanti
J. Vac. Sci. Technol. A **33**, 01A151 (2015); http://dx.doi.org/10.1116/1.4903366

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Enhanced photocatalytic performance in atomic layer deposition grown TiO_2 thin films via hydrogen plasma treatment
Alexander Sasinska, Trilok Singh, Shuangzhou Wang, Sanjay Mathur and Ralph Kraehnert
J. Vac. Sci. Technol. A **33**, 01A152 (2015); http://dx.doi.org/10.1116/1.4904503

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Metal-HfO_2-Ge capacitor: Its enhanced charge trapping properties with S-treated substrate and atomic-layer-deposited HfO_2 layer
In-Sung Park, Yong Chan Jung, Sejong Seong, Jinho Ahn and Sung Bo Lee
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