

# REVIEW ARTICLES

## S **Recent applications of hard x-ray photoelectron spectroscopy**

Conan Weiland, Abdul K. Rumaiz, Piero Pianetta and Joseph C. Woicik  
J. Vac. Sci. Technol. A **34**, 030801 (2016);  
<http://dx.doi.org/10.1116/1.4946046>

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# INTERFACES

## S **Native oxide transport and removal during the atomic layer deposition of Ta<sub>2</sub>O<sub>5</sub> on InAs(100) surfaces**

Alex J. Henegar and Theodosia Gougousi  
J. Vac. Sci. Technol. A **34**, 031101 (2016);  
<http://dx.doi.org/10.1116/1.4945115>

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## S **Cross-sectional scanning tunneling microscopy of antiphase boundaries in epitaxially grown GaP layers on Si(001)**

Christopher Prohl, Henning Döscher, Peter Kleinschmidt, Thomas Hannappel and Andrea Lenz  
J. Vac. Sci. Technol. A **34**, 031102 (2016);  
<http://dx.doi.org/10.1116/1.4945992>

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## OA **Direct wafer bonding of highly conductive GaSb/GaInAs and GaSb/GaInP heterojunctions prepared by argon-beam surface activation**

Felix Predan, Dirk Reinwand, Romain Cariou, Markus Niemeyer and Frank Dimroth  
J. Vac. Sci. Technol. A **34**, 031103 (2016);  
<http://dx.doi.org/10.1116/1.4947118>

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S **Kinetic mechanism of V-shaped twinning in 3C/4H-SiC heteroepitaxy**

Bin Xin, Yu-Ming Zhang, Hong-Ming Wu, Zhe Chuan Feng, Hao-Hsiung Lin and Ren-Xu Jia

J. Vac. Sci. Technol. A **34**, 031104 (2016);

<http://dx.doi.org/10.1116/1.4947601>

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## PHOTOVOLTAICS AND ENERGY

S **Electrical properties from photoinduced charging on Cd-doped (100) surfaces of CuInSe<sub>2</sub> epitaxial thin films**

Nicole Johnson, Pinar Aydogan, Sefik Suzer and Angus Rockett

J. Vac. Sci. Technol. A **34**, 031201 (2016);

<http://dx.doi.org/10.1116/1.4945105>

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## PLASMA SCIENCE AND TECHNOLOGY

S **Ion energy control in reactive ion etching using 1-MHz pulsed-DC square-wave-superimposed 100-MHz RF capacitively coupled plasma**

Akio Ui, Hisataka Hayashi, Itsuko Sakai, Takeshi Kaminatsui, Tokuhisa Ohiwa, Katsumi Yamamoto and Keisuke Kikutani

J. Vac. Sci. Technol. A **34**, 031301 (2016);

<http://dx.doi.org/10.1116/1.4943384>

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S **Measurement of spatial and temporal evolution of electromagnetic fields in a 100 MHz plasma source using B dot and double dipole probes**

Barton Lane, Colin Campbell, Ikuo Sawada and Peter L. G. Ventzek  
J. Vac. Sci. Technol. A **34**, 031302 (2016);  
<http://dx.doi.org/10.1116/1.4943586>

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S **Optimization of a chlorine-based deep vertical etch of GaN demonstrating low damage and low roughness**

Maher Tahhan, Joseph Nedy, Silvia H. Chan, Cory Lund, Haoran Li, Geetak Gupta, Stacia Keller and Umesh Mishra  
J. Vac. Sci. Technol. A **34**, 031303 (2016);  
<http://dx.doi.org/10.1116/1.4944054>

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S **Implementation of atomic layer etching of silicon: Scaling parameters, feasibility, and profile control**

Alok Ranjan, Mingmei Wang, Sonam D. Sherpa, Vinayak Rastogi, Akira Koshiishi and Peter L. G. Ventzek  
J. Vac. Sci. Technol. A **34**, 031304 (2016);  
<http://dx.doi.org/10.1116/1.4944850>

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S **F-atom kinetics in SF<sub>6</sub>/Ar inductively coupled plasmas**

Wei Yang, Shu-Xia Zhao, De-Qi Wen, Wei Liu, Yong-Xin Liu, Xue-Chun Li and You-Nian Wang  
J. Vac. Sci. Technol. A **34**, 031305 (2016);  
<http://dx.doi.org/10.1116/1.4945003>

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S **Impact of hydrofluorocarbon molecular structure parameters on plasma etching of ultra-low-K dielectric**

Chen Li, Rahul Gupta, Venkateswara Pallem and Gottlieb S. Oehrlein  
J. Vac. Sci. Technol. A **34**, 031306 (2016);  
<http://dx.doi.org/10.1116/1.4944609>

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S **Electromagnetic simulation of helicon plasma antennas for their electrostatic shield design**

Yorgos Stratakos, Angelos Zeniou and Evangelos Gogolides  
J. Vac. Sci. Technol. A **34**, 031307 (2016);  
<http://dx.doi.org/10.1116/1.4945001>

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S **Effects of atmospheric-pressure discharge type on ionic wind velocity for needle-to-cylinder electrode**

Hua Li, Chaoqun Guo, Yukai Li, Xialei Hong, Jianmin Zhu and Zhencheng Chen  
J. Vac. Sci. Technol. A **34**, 031308 (2016);  
<http://dx.doi.org/10.1116/1.4947073>

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## SURFACES

S **Work functions of hafnium nitride thin films as emitter material for field emitter arrays**

Yasuhito Gotoh, Sho Fujiwara and Hiroshi Tsuji  
J. Vac. Sci. Technol. A **34**, 031401 (2016);  
<http://dx.doi.org/10.1116/1.4945991>

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S **Silver decorated polymer supported semiconductor thin films by UV aided metalized laser printing**

Jonathan C. Halbur, Richard P. Padbury and Jesse S. Jur  
J. Vac. Sci. Technol. A **34**, 031402 (2016);  
<http://dx.doi.org/10.1116/1.4947011>

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## THIN FILMS

S **Pilot-scale electron cyclotron resonance-metal organic chemical vapor deposition system for the preparation of large-area fluorine-doped SnO<sub>2</sub> thin films**

Bup Ju Jeon, Chairul Hudaya and Joong Kee Lee  
J. Vac. Sci. Technol. A **34**, 031501 (2016);  
<http://dx.doi.org/10.1116/1.4943389>

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S **Improvement of the thermal stability of nickel silicide using a ruthenium interlayer deposited via remote plasma atomic layer deposition**

Inhye Lee, Jingyu Park, Heeyoung Jeon, Hyunjung Kim, Changhee Shin, Seokyeon Shin, Kunyoung Lee and Hyeongtag Jeon  
J. Vac. Sci. Technol. A **34**, 031502 (2016);  
<http://dx.doi.org/10.1116/1.4943090>

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## **Optimizing AlF<sub>3</sub> atomic layer deposition using trimethylaluminum and TaF<sub>5</sub>: Application to high voltage Li-ion battery cathodes**

David H. K. Jackson, Masihur R. Laskar, Shuyu Fang, Shenzhen Xu, Ryan G. Ellis, Xiaoqing Li, Mark Dreibelbis, Susan E. Babcock, Mahesh K. Mahanthappa, Dane Morgan, Robert J. Hamers and Thomas F. Kuech  
J. Vac. Sci. Technol. A **34**, 031503 (2016);  
<http://dx.doi.org/10.1116/1.4943385>

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## **Effect of microstructural evolution on mechanical and tribological properties of Ti-doped DLC films: How was an ultralow friction obtained?**

Fei Zhao, Hongxuan Li, Li Ji, Yongjun Wang, Xiaohong Liu, Huidi Zhou and Jianmin Chen  
J. Vac. Sci. Technol. A **34**, 031504 (2016);  
<http://dx.doi.org/10.1116/1.4944053>

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## **Formation of VO<sub>2</sub> by rapid thermal annealing and cooling of sputtered vanadium thin films**

Cheikhou O. F. Ba, Vincent Fortin, Souleymane T. Bah, Réal Vallée and Ashrit Pandurang  
J. Vac. Sci. Technol. A **34**, 031505 (2016);  
<http://dx.doi.org/10.1116/1.4944606>

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## **Atomic layer deposition of cerium oxide for potential use in diesel soot combustion**

Tatiana V. Ivanova, Jenni Toivonen, Philipp S. Maydannik, Tommi Kääriäinen, Mika Sillanpää, Tomáš Homola and David C. Cameron  
J. Vac. Sci. Technol. A **34**, 031506 (2016);  
<http://dx.doi.org/10.1116/1.4944589>

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S **Residual stress and bending strength of ZnO films deposited on polyimide sheet by RF sputtering system**

Kazuya Kusaka, Yutaka Maruoka and Tatsuya Matsue  
J. Vac. Sci. Technol. A **34**, 031507 (2016);  
<http://dx.doi.org/10.1116/1.4944610>

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S **Ru nucleation and thin film smoothness improvement with ammonia during chemical vapor deposition**

Wen Liao and John G. Ekerdt  
J. Vac. Sci. Technol. A **34**, 031508 (2016);  
<http://dx.doi.org/10.1116/1.4944852>

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S **Plasma-free atomic layer deposition of Ru thin films using H<sub>2</sub> molecules as a nonoxidizing reactant**

Seung-Joon Lee, Soo-Hyun Kim, Masayuki Saito, Kazuharu Suzuki, Shunichi Nabeya, Jeongyeop Lee, Sangdeok Kim, Seungjin Yeom and Do-Joong Lee  
J. Vac. Sci. Technol. A **34**, 031509 (2016);  
<http://dx.doi.org/10.1116/1.4946755>

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S **Atomic layer deposition synthesized TiO<sub>x</sub> thin films and their application as microbolometer active materials**

Mahmud Yusuf Tanrikulu, Hamid Reza Rasouli, Mohammad Ghaffari, Kagan Topalli and Ali Kemal Okyay  
J. Vac. Sci. Technol. A **34**, 031510 (2016);  
<http://dx.doi.org/10.1116/1.4947120>

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S **Synthesis and characterization of MoB<sub>2-x</sub> thin films grown by nonreactive DC magnetron sputtering**

Paulius Malinovskis, Justinas Palisaitis, Per O. Å. Persson, Erik Lewin and Ulf Jansson

J. Vac. Sci. Technol. A **34**, 031511 (2016);  
<http://dx.doi.org/10.1116/1.4948234>

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S ***In situ* metrology to characterize water vapor delivery during atomic layer deposition**

Tariq Ahmido, William A. Kimes, Brent A. Sperling, Joseph T. Hodges and James E. Maslar

J. Vac. Sci. Technol. A **34**, 031512 (2016);  
<http://dx.doi.org/10.1116/1.4948360>

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S **Defect analysis in low temperature atomic layer deposited Al<sub>2</sub>O<sub>3</sub> and physical vapor deposited SiO barrier films and combination of both to achieve high quality moisture barriers**

Tony Maindron, Tony Jullien and Agathe André

J. Vac. Sci. Technol. A **34**, 031513 (2016);  
<http://dx.doi.org/10.1116/1.4947289>

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## VACUUM SCIENCE AND TECHNOLOGY

S **Uniform deposition of size-selected clusters using Lissajous scanning**

Atsushi Beniya, Hirohito Hirata and Yoshihide Watanabe

J. Vac. Sci. Technol. A **34**, 031601 (2016);  
<http://dx.doi.org/10.1116/1.4944051>

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## **Nondiffusive rubidium vapor transport in confined glass channels**

Matthieu Giraud-Carrier, Cameron Hill, Trevor Decker, Aaron R. Hawkins, Jennifer A. Black, Soren Almquist and Holger Schmidt  
J. Vac. Sci. Technol. A **34**, 031602 (2016);  
<http://dx.doi.org/10.1116/1.4945386>

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## **National Synchrotron Light Source II storage ring vacuum systems**

Hsiao-Chaun Hseuh, Charles Hetzel, Shuwei Leng, King Wilson, Huijuan Xu and Douglas Zigrosser  
J. Vac. Sci. Technol. A **34**, 031603 (2016);  
<http://dx.doi.org/10.1116/1.4945406>

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## **Temperature-stable quartz oscillator and its applications in pressure gauges, gas sensing, and gas concentration measurements**

Atsushi Suzuki  
J. Vac. Sci. Technol. A **34**, 031604 (2016);  
<http://dx.doi.org/10.1116/1.4946757>

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## **Fabrication of high aspect ratio TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> nanogratings by atomic layer deposition**

Evgeniy Shkondin, Osamu Takayama, Jonas Michael Lindhard, Pernille Voss Larsen, Mikkel Dysseholm Mar, Flemming Jensen and Andrei V. Lavrinenko  
J. Vac. Sci. Technol. A **34**, 031605 (2016);  
<http://dx.doi.org/10.1116/1.4947586>

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## **Design and qualification of an UHV system for operation on sounding rockets**

Jens Grosse, Stephan Tobias Seidel, Dennis Becker, Maïke Diana Lachmann, Marco Scharringhausen, Claus Braxmaier and Ernst Maria Rasel  
J. Vac. Sci. Technol. A **34**, 031606 (2016);  
<http://dx.doi.org/10.1116/1.4947583>

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