

FullMarch 2017

Evolution of microstructure and macrostress in sputtered hard Ti(Al,V)N films with increasing energy delivered during their growth by bombarding ions

Jindřich Musil, Martin Jaroš, Radomír Čerstvý, and Stanislav Haviar

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020601 (2017); <http://doi.org/10.1116/1.4967935>

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Patterning optically clear films: Coplanar transparent and color-contrasted thin films from interdiffused electrodeposited and solution-processed metal oxides

Colm Glynn, Hugh Geaney, David McNulty, John O'Connell, Justin Holmes more...

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020602 (2017); <http://doi.org/10.1116/1.4968549>

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Metal-vapor integration/transportation based on metal-atom desorption from polymer surfaces with a low glass-transition temperature

Tsuyoshi Tsujioka, Riku Shirakawa, Saki Matsumoto, Ryo Nishimura, and Kingo Uchida

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020603 (2017); <http://doi.org/10.1116/1.4971415>

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Low-carbon steel ultra-high-vacuum Schottky emitter electron gun with double O-rings for axis adjustment

In-Yong Park, and Boklae Cho

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020604 (2017); <http://doi.org/10.1116/1.4971413>

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Decreasing friction during Al cold forming using a nanomolecular layer

Stephan Prünte, Denis Music, Jochen M. Schneider, Marco Teller, Gerhard Hirt more...

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020605 (2017); <http://doi.org/10.1116/1.4972515>

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Maximizing stoichiometry control in reactive sputter deposition of TiO

Brian D. Hoskins, and Dmitri B. Strukov

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 020606 (2017); <http://doi.org/10.1116/1.4974140>

Interfaces

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Use of a buried loop layer as a detector of interstitial flux during oxidation of SiGe heterostructures

Thomas P. Martin, Henry L. Aldridge Jr., K. S. Jones, and Renata A. Camillo-Castillo

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021101 (2017); <http://doi.org/10.1116/1.4972516>

Photovoltaics and Energy

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Performance and durability of broadband antireflection coatings for thin film CdTe solar cells

Gerald Womack, Piotr M. Kaminski, Ali Abbas, Kenan Isbilir, Ralph Gottschalg more...

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Plasma Science and Technology

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Experimental and numerical investigations on time-resolved characteristics of pulsed inductively coupled O /Ar plasmas

Chan Xue, De-Qi Wen, Wei Liu, Yu-Ru Zhang, Fei Gao more...

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021301 (2017); <http://doi.org/10.1116/1.4967913>

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Plasma polymerization of poly(3,4-ethylenedioxyethene) films: The influence of plasma gas phase chemistry

Caroline Liu, Matthew J. Goeckner, and Amy V. Walker

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021302 (2017); <http://doi.org/10.1116/1.4968017>

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Investigation of feature orientation and consequences of ion tilting during plasma etching with a three-dimensional feature profile simulator

Yiting Zhang, Chad Huard, Saravanapriyan Sriraman, Jun Belen, Alex Paterson more...

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021303 (2017); <http://doi.org/10.1116/1.4968392>

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Comprehensive understanding of chamber conditioning effects on plasma characteristics in an advanced capacitively coupled plasma etcher

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Kye Hyun Baek, Eunwoo Lee, Michael Klick, and Ralf Rothe

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021304 (2017); <http://doi.org/10.1116/1.4968206>

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Inductively coupled BCl /Cl /Ar plasma etching of Al-rich AlGaN

Erica A. Douglas, Carlos A. Sanchez, Robert J. Kaplar, Andrew A. Allerman, and Albert G. Baca

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021305 (2017); <http://doi.org/10.1116/1.4971245>

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Gate patterning strategies to reduce the gate shifting phenomenon for 14 nm fully depleted silicon-on-insulator technology

Onintza Ros, Erwine Pargon, Marc Fouchier, Pascal Gouraud, and Sebastien Barnola

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021306 (2017); <http://doi.org/10.1116/1.4972228>

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Electric potential screening on metal targets submitted to reactive sputtering

Carles Corbella, Adrian Marcak, Achim von Keudell, and Teresa de los Arcos

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021307 (2017); <http://doi.org/10.1116/1.4972566>

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SiO etching in an Ar/c-C F /O dual frequency capacitively coupled plasma

Shahid Rauf, and Ajit Balakrishna

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021308 (2017); <http://doi.org/10.1116/1.4973299>

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Macroparticles formation in cathodic arc deposition of nitride coatings from TiNb alloy cathodes

Daniela Dumitriu LaGrange, Thomas LaGrange, Antonio Santana, Raiko Jähnig, and Ayat Karimi

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021309 (2017); <http://doi.org/10.1116/1.4975638>

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Characterization of gas adsorption on beryllium-tungsten electrically isolated target surfaces investigated by XPS

Neil Alexandru Marin, Cristian P. Lungu, and Corneliu Porosnicu

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021310 (2017); <http://doi.org/10.1116/1.4976746>

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Metamorphic growth of relaxed single crystalline aluminum on silicon (111)

Brian M. McSkimming, Ashish Alexander, Margaret H. Samuels, Bruce Arey, Ilke Arslan more...

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Microstructure and mechanical properties of $(\text{AlTi})_x\text{N}_{1-x}$ films by magnetic-field-enhanced high power impulse magnetron sputtering

Xiubo Tian, Yinghe Ma, Jian Hu, Mingkang Bi, Chunzhi Gong more...

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021402 (2017); <http://doi.org/10.1116/1.4971202>

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Influence of gaseous environments on beryllium–tungsten and tungsten surfaces investigated by XPS

Alexandru Marin, Cristian P. Lungu, and Corneliu Porosnicu

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021403 (2017); <http://doi.org/10.1116/1.4972513>

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Surface functionalization of carbon fibers with active screen plasma

Santiago Corujeira Gallo, Constantinos Charitidis, and Hanshan Dong

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Stable yttrium oxyfluoride used in plasma process chamber

Yoshinobu Shiba, Akinobu Teramoto, Tetsuya Goto, Yukio Kishi, Yasuyuki Shirai more...

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***Ab initio* determination of electron affinity of polar nitride surfaces, clean and under Cs coverage**

Pawel Strak, Pawel Kempisty, Konrad Sakowski, and Stanislaw Krukowski

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021406 (2017); <http://doi.org/10.1116/1.4975332>

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Wet-cleaning of MgO(001): Modification of surface chemistry and effects on thin film growth investigated by x-ray photoelectron spectroscopy and time-of-flight secondary ion mass spectroscopy

Arnaud Le Febvrier, Jens Jensen, and Per Eklund

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Understanding of a new approach for silicon nitride spacer etching using gaseous hydrofluoric acid after hydrogen ion implantation

Vincent Ah-Leung, Olivier Pollet, Nicolas Poss  m  , Maxime Garcia Barros, N  vine Rochat more...

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Thin Films

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Resistive memory multilayer structure with self-rectifying and forming free properties along with their modification by adding a hafnium nanoparticle midlayer

Irini Michelakaki, Panagiotis Bousoulas, Nikos Maragos, Nikos Boukos, and Dimitris Tsoukalas

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021501 (2017); <http://doi.org/10.1116/1.4968204>

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Effect of reactor pressure on the conformal coating inside porous substrates by atomic layer deposition

Paul Poodt, Alfredo Marneli, Jeff Schulpen, W. M. M. (Erwin) Kessels, and Fred Roozeboom

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Contrasting transparent conductive properties of ZnO films on amorphous and crystalline substrates in view of thickness dependence

Housei Akazawa

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021503 (2017); <http://doi.org/10.1116/1.4973540>

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Industrial-scale sputter deposition of molybdenum oxide thin films: Microstructure evolution and properties

Julia M. Pachlhofer, Aitana Tarazaga Martín-Luengo, Robert Franz, Enrico Franzke, Harald Köstenbauer more...

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Postdeposition annealing on RF-sputtered SrTiO₃ thin films

Türkan Bayrak, Seda Kizir, Enver Kahveci, Necmi Bıyıklı, and Eda Goldenberg

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Challenges in atomic layer deposition of carbon-containing silicon-based dielectrics

Rafael A. Ovanesyan, Dennis M. Hausmann, and Sumit Agarwal

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Hard x-ray photoemission study of oxidation states of Ti underlayer in Fe/Ti film system

Akito Takashima, Eiji Ikenaga, Takayuki Muro, Akio Kawabata, Tomo Murakami more...

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High-k oxides by atomic layer deposition—Applications in biology and medicine

Marek Godlewski, Sylwia Gierałowska, Łukasz Wachnicki, Rafał Pietuszk, Bartłomiej S. Witkowski

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Extrinsic time-dependent dielectric breakdown of low-*k* organosilicate thin films from vacuum-ultraviolet irradiation

Xiangyu Guo, Dongfei Pei, Huifeng Zheng, Weiyi Li, J. Leon Shohet more...

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Boron and high-*k* dielectrics: Possible fourth etch stop colors for multipattern optical lithography processing

Shailesh Dhungana, Thuong D. Nguyen, Bradley J. Nordell, Anthony N. Caruso, Michelle M. Paquette

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Water-modulated oxidation in the growth of *m*-ZnO epitaxial thin film by atomic layer deposition

Wan-Chen Hsieh, Paritosh Vilas Wadekar, Hua-Huei Liu, Chiao-Han Lee, Chun-Fu Chang more...

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Optical, electrical, and electrochemical properties of indium tin oxide thin films studied in different layer-structures and their corresponding inorganic all-thin-film solid-state electrochromic devices

Mengying Wang, Xungang Diao, Guobo Dong, Yingchun He, and Qirong Liu

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021512 (2017); <http://doi.org/10.1116/1.4975823>

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Digitally alloyed ZnO and TiO thin film thermistors by atomic layer deposition for uncooled microbolometer applications

Bilge T. Tilkioglu, Sami Bolat, Mahmud Yusuf Tanrikulu, and Ali Kemal Okyay

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Effect of scan speed on moisture barrier properties of aluminum oxide using spatial atomic layer deposition

Seokyeon Shin, Hagyoung Choi, Giyul Ham, Joohyun Park, Juhyun Lee more...

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Vacuum Science and Technology

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Interplay of composition, structure, and electron density of states in W-Os cathode materials and relationship with thermionic emission

Qunfei Zhou, Thomas John Balk, and Matthew J. Beck

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021601 (2017); <http://doi.org/10.1116/1.4972857>

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***In situ* absolute magnetometry in an UHV scanning probe microscope using conducting polymer-thin film**

Kapildeb Ambal, Clayton C. Williams, and Christoph Boehme

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021602 (2017); <http://doi.org/10.1116/1.4973920>

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Effect of the base pressure achieved prior deposition on the main properties of ZnO:Al films obtained by DC magnetron sputtering at room temperature for electrical contact use

Jorge A. García-Valenzuela, Jordi Andreu, and Joan Bertomeu

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021603 (2017); <http://doi.org/10.1116/1.4974918>

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Rarefied gas flow into vacuum through short tubes at variable wall temperatures

Mingxing Zhang, Christian Day, Stylianos Varoutis, and Guobiao Cai

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Hydrogen interactions with oxidized austenitic stainless steel

Vincenc Nemanič, Marko Žumer, and Mitja Lakner

Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films **35**, 021605 (2017); <http://doi.org/10.1116/1.4975142>