INVITED FEATURE PAPER

Review
Nano-materials and structures for the 4th innovation of polymer electrolyte fuel cell
Chanhoo Pak, Sangkyun Kang, Yeong Suk Choi, Hyuk Chang
Samsung Advanced Institute of Technology, Samsung Electronics Co., Ltd.
http://www.mrs.org/jmr_10_0280

MATERIALS COMMUNICATIONS
Theoretical analysis of the relationships between hardness, elastic modulus, and the work of indentation for work-hardening materials
Rong Yang, 12 Taihua Zhang, 1 Yihui Feng 12
1 State Key Laboratory of Nonlinear Mechanics (LNM), Institute of Mechanics, Chinese Academy of Sciences, 2Graduate School of Chinese Academy of Sciences
http://www.mrs.org/jmr_10_0267

Strong Effect of Pd concentration on the soldering reaction between Ni and Sn-Pd alloys
Cheng En Ho, Wojciech Gierlotka, Sheng Wei Lin
Yuan Ze University
http://www.mrs.org/jmr_10_0268

Control of iron nitride formation by a high magnetic field
W.T. Tong, 1 H. Zhang, 1 J. Sun, 1 L. Zuo, 1 J. He, 1 J. Lu 1
1 Key Laboratory of Electromagnetic Processing of Materials, Ministry of Education, Northeastern University, 2The Hong Kong Polytechnic University
http://www.mrs.org/jmr_10_0279

ARTICLES
Combinatorial nano-calorimetry
Patrick J. McCluskey, Joost J. Vlassak
Harvard University
http://www.mrs.org/jmr_10_0286

Judd-Oelft spectroscopic study of Mg/Er-codoped near-stoichiometric LiNbO3 crystals for integrated optics
De-Long Zhang, 1 Hur Zheng, 1 Edwin Yue-Bun Pun 2
1 Tianjin University, 2City University of Hong Kong
http://www.mrs.org/jmr_10_0269

Mid-infrared emissions from Er+ in Ga2S3-GeS2-Sb2S3 glasses
Manabu Ichikawa, Yoichi Ishikawa, Takashi Wakisugi, Kohei Kadono
Kyoto Institute of Technology
http://www.mrs.org/jmr_10_0274

Luminescence of SrY2O3:Eu3+ associated with defects
Jia Zhang, Yuhua Wang
Lanzhou University
http://www.mrs.org/jmr_10_0283

Sintering of hierarchically structured ZnO
Markus König, 1 Sören Höhn, 1 Rudolf Hoffmann, 1 Jens Sutter, 2 Stefan Lauterbach, 1 Ludwig Weiler, 1 Olivier Guillot, 2 Jürgen Rüdell 2
1 Technische Universität Darmstadt, 2 IKTS Dresden, 3 Karlsruher Institut für Technologie
http://www.mrs.org/jmr_10_0288

Resistance degradation behavior of Ca-doped BaTiO3
Samsung Electro-Mechanics Co. Ltd.
http://www.mrs.org/jmr_10_0276

Processing and electrical properties of Pb2Ba2Nb2O9 ceramics
Sian Dursun, Chiang Duran
Gebze Institute of Technology
http://www.mrs.org/jmr_10_0284

Crystallization kinetics of Si3N4 in Si-B-C-N polymer-derived ceramics
Amir H. Tavakoli, Peter Gerstel, Jerzy A. Golczewski, Joachim Bill
University of Stuttgart and Max Planck Institute for Metals Research
http://www.mrs.org/jmr_10_0282

Microstructure and mechanical properties of Ti/AITiN/Ti-DLC composite coatings on steel
Xiaolu Pang, 1 Huisheng Yang, 1 Shijian Shi, 1 Kewei Gao, 1 Yanbin Wang, 1 Alex A. Volinsky 1
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http://www.mrs.org/jmr_10_0281

Evolution of microstructure and stress of and associated whisker growth on Sn layers sputter-deposited on Cu substrates
M. Sobiech, 1 C. Krüger, 1 U. Welzel, 1 J. Y. Wang, 1 E. J. Mittemeijer, 2 W. Hügel 2
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http://www.mrs.org/jmr_10_0276

Whisker growth from an electroplated zinc coating
Aongheng Baated, Keun-Soo Kim, Katsuaki Suganuma
Osaka University
http://www.mrs.org/jmr_10_0273

Enhancement of plasticity in Ti-based metallic glass matrix composites by controlling characteristic and volume fraction of primary phase
K.R. Lim, 1 J.H. Na, 2 J.M. Park, 3 W.T. Kim, 1 D.H. Kim 1
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http://www.mrs.org/jmr_10_0277

Compressive deformation and damage of Mg-based metallic glass interpenetrating phase composite containing 30–70 vol% titanium
Yu Sun, 1 Hafeng Zhang, 1 Aimin Wang, 1 Huameng Fu, 1 Zhaqing Hu 2, 1 Cuie Wen 2, 1 Peter Hodgson 3
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http://www.mrs.org/jmr_10_0272

Nonlinear elastic load-displacement relation for spherical indentation on rubberlike materials
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http://www.mrs.org/jmr_10_0283

Effects of indenter geometry on indentation-induced densification of soda-lime glass
Satoshi Yoshida, Hiroshi Sawasato, Toru Sugawara, Yoshinori Miura, Jun Matsuoka
The University of Shiga Prefecture
http://www.mrs.org/jmr_10_0287

Numerical approaches and experimental verification of the conical indentation techniques for residual stress evaluation
Jin Huang Lee, Hyungyil Lee, Hong Chul Hyun, Minsoo Kim
Sogang University
http://www.mrs.org/jmr_10_0275

A plastic-damage model for finite element analysis of cracking of silicon under indentation
Haibo Wan, Yao Shen, Qiuqiong Chen, Youxing Chen, Shanghai Jiao Tong University
http://www.mrs.org/jmr_10_0270

Novel Cu/Si composites: A sol-gel-derived Al2O3 film as barrier to control interfacial reaction
Hui Cai, Debao Tang, Yaping Wang, Xiaoping Song, Bingjun Ding
Xi’an Jiaotong University
http://www.mrs.org/jmr_10_0271