



MRS **C**Communications

VOLUME 8 • NO 3, 2018

A publication of the

MRS MATERIALS RESEARCH SOCIETY
Advancing materials. Improving the quality of life.

CAMBRIDGE
UNIVERSITY PRESS

MRS COMMUNICATIONS

MRS Communications is a high-impact archival journal focusing on rigorous peer review and rapid publication of completed research with broad appeal to the materials community. Major article types include rapid communications (research letters), “prospectives” papers, correspondence and commentaries.

“Prospectives” are a unique feature of this Journal offering succinct and forward-looking reviews of topics of interest to a broad materials research readership. This modern journal features advanced on-line publication, in full color, acceptance of supplemental materials, and multimedia content. *MRS Communications* leverages the deep technical expertise of leading MRS members among its editorial board and reviewers under the governance of a team of Principal Editors, and the advanced author and reader publication services and academic standing offered by Cambridge Journals.

Manuscript submissions that succinctly describe groundbreaking work in the broad field of materials research are encouraged. Examples of leading topical areas of interest to *MRS Communications* readers include:

- Biomaterials and biomimetic materials
- Carbon-based materials
- Complex oxides and their interfaces
- Materials for energy storage, conversion and environmental remediation
- Materials for nanophotonics and plasmonic devices
- Theory and simulation of materials
- Mechanical behavior at the nanoscale
- Nanocrystal growth, structures and properties, including nanowires and nanotubes
- Nanoscale semiconductors for new electronic and photonic applications
- New materials synthesis, templating and assembly methods
- New topics in metals, alloys and transformations
- Novel and *in-situ* characterization methods
- Novel catalysts and sensor materials
- Organic and hybrid functional materials
- Quantum matter
- Surface, interface and length-scale effects on materials properties

Author queries and submissions

MRS Communications operates a fully online author submission and peer review system, which can be found at <http://mc.manuscriptcentral.com/mrscom>

For questions related to *MRS Communications*, please contact
mrc@mrs.org

MRS Communications Article Types

Prospectives

Forward-looking short reviews. Authoritative and balanced, but can deal with controversies or new and speculative areas of research for future consideration.

Technical Description:

- Generally invited, although unsolicited short proposals will be reviewed by editorial team
- 7000-8000 words, 8-10 printed pages
- Multiple illustrations and figures encouraged
- Supplemental and multimedia data encouraged
- Max. 100 references

Research Letters

A concise presentation of a study with broad interest, showing novel results.

Technical Description:

- 6000 word maximum, 6-8 printed pages
- Each figure or figure part is counted as 250 words
- Short 100 word abstract
- Max. 30 references
- Supplemental data encouraged

Editorials

Opinion piece, policy statement, or general commentary, typically written by board of the publication or a guest of notable stature.

Technical Description:

- Generally written or invited by editorial team
- 500-1500 words, 1-3 printed pages
- Max. 15 references
- No supplemental data

Commentaries

An item whose subject or focus is another article or articles; this article comments on the other article(s).

Technical Description:

- Generally invited by editorial team, although unsolicited commentaries may be reviewed
- Accessible and non-technical style
- 500-1500 words, 1-3 printed pages
- 1 fig or illustration
- Max. 15 references
- No supplemental data

Correspondence

Letter to the editor/publication, typically commenting upon a published item.

Technical Description:

- Flexible format of general interest to readership—policy debates, announcements or matters arising from published material
- 500-1000 words, 1-2 printed pages
- 1 fig or illustration
- Max. 10 references
- Supplemental data at editor discretion
- If critical of a previously published paper, original author will be given option to publish a reply (no automatic right to reply)

Copyright © 2018, Materials Research Society. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: <http://www.cambridge.org/rights/permissions/permission.htm>. Permission to copy (for users in the U.S.A.) is available from Copyright Clearance Center <http://www.copyright.com>, email: info@copyright.com.

MRS Communications Subscription Prices (2018)

Institutions

Online only

\$828.00 / £517.00

Print-on-Demand available to online subscribers.

Inquire Customer Services.

MRS Communications (ISSN: 2159-6859) is published four times a year by Cambridge University Press for the Materials Research Society.

Individual member subscriptions are for personal use only.

MRS Communications

Editor-in-Chief: Rigoberto Advincula, *Case Western Reserve University, USA*

Principal Editors

Luca Dal Negro, *Boston University, USA*

Jason Locklin, *University of Georgia, USA*

Róisín Owens, *University of Cambridge, United Kingdom*

Derek Patton, *University of Southern Mississippi, USA*

Alberto Salleo, *Stanford University, USA*

Shinji Takeoka, *Waseda University, Japan*

MRS Communications Advisory Board

Jodie Bradby, *The Australian National University, Australia*

Horacio Espinosa, *Northwestern University, USA*

A. Lindsay Greer, *Cambridge University, United Kingdom*

Supratik Guha, *Argonne National Laboratory/University of Chicago, USA*

Howard E. Katz, *Johns Hopkins University, USA*

Nicholas A. Kotov, *University of Michigan, USA*

George Malliaras, *Cambridge University, United Kingdom*

Tobin Marks, *Northwestern University, USA*

Andrew M. Minor, *University of California, Berkeley and Lawrence Berkeley National Laboratory, USA*

Linda F. Nazar, *University of Waterloo, Canada*

Kenichi Oyaizu, *Waseda University, Japan*

Ramamoorthy Ramesh, *University of California, Berkeley, USA*

Venkatesan Renugopalakrishnan, *Northeastern University and Boston Children's Hospital, USA*

Henning Riecher, *Paul Drude Institut für Festkörperelektronik, Germany*

Thomas P. Russell, *University of Massachusetts, USA*

Darrel G. Schlom, *Cornell University, USA*

James S. Speck, *University of California, Santa Barbara, USA*

Alec Talin, *Sandia National Laboratory, USA*

Katsuyo Thornton, *University of Michigan, USA*

Vladimir V. Tsukruk, *Georgia Institute of Technology, USA*

Nagarajan (Nagy) Valanoor, *The University of New South Wales, Australia*

Suresh Valiyaveettil, *National University of Singapore, Singapore*

Editorial Office:

Ellen W. Kracht, *Publications Manager, Materials Research Society, Warrendale, PA*

Kirby L. Morris, *Production Assistant, Materials Research Society, Warrendale, PA*

Eileen M. Kiley, *Director of Communications, Materials Research Society, Warrendale, PA*

MRS Communications

Volume 8, Number 3, September 2018

SPECIAL ISSUE ON 2D NANOMATERIALS FOR HEALTHCARE AND LAB-ON-A-CHIP DEVICES

Introduction

- 625–626 Two-dimensional nanomaterials for healthcare and lab-on-a-chip devices Venkatesan Renugopalakrishnan, Tharangattu N. Narayanan, Sakthi D. Kumar, Yogish C. Kudwa, Jairam R. Eswara

2D Nanomaterials for Healthcare and Lab-on-a-Chip Devices Prospective Articles

- 627–641 Flexible substrate sensors for multiplex biomarker monitoring Desmond Brennan, Paul Galvin
- 642–651 Intracellular microRNA quantification in intact cells: a novel strategy based on reduced graphene oxide-based fluorescence quenching Ramasamy Paulmurugan, Pulickel M. Ajayan, Dorian Liepmann, V. Renugopalakrishnan
- 652–667 Multi-organ on a chip for personalized precision medicine Vivekanandan Palaninathan, Vimal Kumar, Toru Maekawa, Dorian Liepmann, Ramasamy Paulmurugan, Jairam R. Eswara, Pulickel M. Ajayan, Shine Augustine, Bansi D. Malhotra, Sowmya Viswanathan, Venkatesan Renugopalakrishnan, D. Sakthi Kumar

2D Nanomaterials for Healthcare and Lab-on-a-Chip Devices Research Letters

- 668–679 An emerging nanostructured molybdenum trioxide-based bio-compatible sensor platform for breast cancer biomarker detection Shine Augustine, Amish G. Joshi, Birendra Kumar Yadav, Anurag Mehta, Pragati Kumar, Venkatesan Renugopalakrishnan, Bansi D. Malhotra
- 680–686 PdAg-decorated three-dimensional reduced graphene oxide–multi-walled carbon nanotube hierarchical nanostructures for high-performance hydrogen peroxide sensing Aytekin Uzunoglu, Dursun Ali Kose, Kazim Kose, Ebru Gokmese, Faruk Gokmese
- 687–694 Graphene-DNAzyme-based fluorescent biosensor for *Escherichia coli* detection Meng Liu, Qiang Zhang, John D. Brennan, Yingfu Li

2D Nanomaterials for Healthcare and Lab-on-a-Chip Devices Prospective Articles

- 695–702 Nickel-reduced graphene oxide composite foams for electrochemical oxidation processes: towards biomolecule sensing S. Thoufeeq, Pankaj Kumar Rastogi, Narayananaru Sreekanth, Malie Madom Ramaswamy Iyer Anantharaman, Tharangattu N. Narayanan
- 703–711 Challenges in fabricating graphene nanodevices for electronic DNA sequencing Jasper P. Fried, Jacob L. Swett, Xinya Bian, Jan A. Mol

END OF SPECIAL ISSUE

Prospective Articles

- 712–717 Interplay and coupling of electric and magnetic multipole resonances in plasmonic nanoparticle lattices Viktoriia E. Babicheva, Andrey B. Evlyukhin

718–726	A review on phospholipid vesicles flowing through channels	Fikret Aydin, Xiaolei Chu, Joseph Greenstein, Meenakshi Dutt
727–741	Vapor phase infiltration: from a bioinspired process to technologic application, a prospective review	Itxasne Azpitarte, Mato Knez
742–753	Molecular valves for colloidal growth of nanocrystal quantum dots: effect of precursor decomposition and intermediate species	Sungjun Koh, Doh C. Lee
754–764	Nanohybrid-sensitized photoelectrochemical cells for solar-to-hydrogen conversion	Hiroaki Tada
765–781	Titania-based electrospun nanofibrous materials: a new model for organic pollutants degradation	Xiaohui Wu, Yang Si, Jianyong Yu, Bin Ding
782–794	Dirac plasmons and beyond: the past, present, and future of plasmonics in 3D topological insulators	T. Ginley, Y. Wang, Z. Wang, S. Law
795–808	Review and perspective on ferroelectric HfO₂-based thin films for memory applications	Min Hyuk Park, Young Hwan Lee, Thomas Mikolajick, Uwe Schroeder, Cheol Seong Hwang
809–822	Boosting interfacial charge transfer for efficient water-splitting photoelectrodes: progress in bismuth vanadate photoanodes using various strategies	Taemin Ludvic Kim, Min-Ju Choi, Ho Won Jang

Research Letters

823–829	Tuning the photocurrent generations from photosystem I assembled in tailored biotic–abiotic interfaces	Hanieh Niroomand, Ravi Pamu, Dibyendu Mukherjee, Bamin Khomami
830–834	Effect of dispersion on metal–insulator–metal infrared absorption resonances	Seth R. Calhoun, Vanessa C. Lowry, Reid Stack, Rachel N. Evans, Jonathan R. Brescia, Chris J. Fredricksen, Janardan Nath, Robert E. Peale, Evan M. Smith, Justin W. Cleary
835–841	First demonstration of “Leaky Integrate and Fire” artificial neuron behavior on (V_{0.95}Cr_{0.05})₂O₃ thin film	Coline Adda, Laurent Cario, Julien Tranchant, Etienne Janod, Marie-Paule Besland, Marcelo Rozenberg, Pablo Stolar, Benoit Corraze
842–849	Synthesis of nanoparticles in carbon arc: measurements and modeling	Shurik Yatom, Alexander Khrabry, James Mitrani, Andrei Khodak, Igor Kaganovich, Vladislav Vekselman, Brent Stratton, Yevgeny Raitses
850–857	Uncertainty quantification of Kinetic Monte Carlo models constructed on-the-fly using molecular dynamics	Abhijit Chatterjee
858–864	Tuning transport properties of nickel-doped zinc oxide for thermoelectric applications	Andrei Baranovskiy, Ido Koresh, Yaron Amouyal
865–870	On the identification of Sb₂Se₃ using Raman scattering	A. Shongalova, M.R. Correia, B. Vermang, J.M.V. Cunha, P.M.P. Salomé, P.A. Fernandes
871–877	Lithography-free variation of the number density of self-catalyzed GaAs nanowires and its impact on polytypism	Philipp Schroth, Julian Jakob, Ludwig Feigl, Seyed Mohammad Mostafavi Kashani, Ullrich Pietsch, Tilo Baumbach

878–884	Improving ambient stability of BiI_3-based perovskites using different phosphoniums as the organic cation	Diana F. Garcia-Gutierrez, Domingo I. Garcia-Gutierrez, Diego González-Quijano, Itzel A. Abarca-Villarreal, Sofía F. Galindo-Garza, Eduardo M. Sanchez
885–892	Development of forcespun fiber-aligned scaffolds from gelatin–zein composites for potential use in tissue engineering and drug release	Narsimha Mamidi, Irasema Lopez Romo, Héctor Manuel Leija Gutiérrez, Enrique V. Barrera, Alex Elías-Zúñiga
893–902	Characterization of the stiffness distribution in two and three dimensions using boundary deformations: a preliminary study	Ping Luo, Yue Mei, Maulik Kotecha, Amirhossein Abbasszadehrad, Stephen Rabke, Geoffrey Garner, Sevan Goenezen
903–910	Natural eggshell membranes exhibiting programmable shape recovery characteristics	Chang Liu, Chen Liu, Qian Li, Miao Song, Dun Niu, Mingming Ma, Xing Zhang
911–917	Biosilica/polydopamine/silver nanoparticles composites: new hybrid multifunctional heterostructures obtained by chemical modification of <i>Thalassiosira weissflogii</i> silica shells	Danilo Vona, Stefania Roberta Cicco, Roberta Ragni, Gabriella Leone, Marco Lo Presti, Gianluca Maria Farinola
918–925	Light-triggered modulation of cell antioxidant defense by polymer semiconducting nanoparticles in a model organism	Maria Moros, Anna Lewinska, Giada Onorato, Maria Rosa Antognazza, Francesca Di Maria, Martina Blasio, Guglielmo Lanzani, Angela Tino, Maciej Wnuk, Claudia Tortiglione
926–931	Carrier-induced absorption as a mechanism for electrochromism in tungsten trioxide	Wennie Wang, Hartwin Peelaers, Jimmy-Xuan Shen, Chris G. Van de Walle
932–937	A novel approach to study the conductivity behavior of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ using scanning probe microscopy technique	M.S. Ivanov, F. Amaral, V.A. Khomchenko, L.C. Costa, J.A. Paixão
938–946	The effects of fluid composition and shear conditions on bacterial adhesion to an antifouling peptide-coated surface	Patrícia Alves, Sivan Nir, Meital Reches, Filipe Mergulhão
947–954	Gas-phase synthesis of nanoparticles: present status and perspectives	Y. Huttel, L. Martínez, A. Mayoral, I. Fernández
955–960	Investigation of the redox state of magnetite upon $\text{A}\beta$-fibril formation or proton irradiation; implication of iron redox inactivation and β-amyloidolysis	Younshick Choi, Jong-Ki Kim
961–969	Spatial–temporal spectroscopy characterizations and electronic structure of methylammonium perovskites	Zhaoyu Liu, K. C. Bhamu, Liang Luo, Satvik Shah, Joong-Mok Park, Di Cheng, Men Long, Rana Biswas, F. Fungara, Ruth Shinar, Joseph Shinar, Javier Vela, Jigang Wang
970–978	Structural, optical, and hole transport properties of earth-abundant chalcopyrite (CuFeS_2) nanocrystals	Ebin Bastola, Khagendra P. Bhandari, Indra Subedi, Nikolas J. Podraza, Randy J. Ellingson
979–987	Consolidation of commercial-size UO_2 fuel pellets using spark plasma sintering and microstructure/microchemical analysis	Bowen Gong, Tiankai Yao, Cai Lu, Peng Xu, Edward Lahoda, Jie Lian
988–994	Magnetocaloric properties and magnetic cooling performance of low-cost $\text{Fe}_{75-x}\text{Cr}_x\text{Al}_{25}$ alloys	Vinay Sharma, Subhasish Pattanaik, Harshida Parmar, R.V. Ramanujan
995–999	Thermal and mechanical issues of high-power laser diode degradation	Jorge Souto, José Luis Pura, Juan Jiménez

1000–1007	Fabrication of chemical sensor for organochlorine pesticide detection using colloidal gold nanoparticles	Puja Goel, Manju Arora
1008–1017	A cross-talk EGFR/VEGFR-targeted bispecific nanoprobe for magnetic resonance/near-infrared fluorescence imaging of colorectal cancer	Qian Wang, Xinxing Zhao, Hao Yan, Feiyu Kang, Zhangfu Li, Yanyan Qiao, Dan Li
1018–1023	Crystal growth of $\text{Ge}_2\text{Sb}_2\text{Te}_5$ at high temperatures	I. Ronneberger, W. Zhang, R. Mazzarello
1024–1028	Nanoscale Tantalum layer impacting magnetic properties of tunnel junction-based molecular devices	Pawan Tyagi, Tobias Goulet
1029–1036	Localized plasmonic fields of nanoantennas enhance second harmonic generation from two-dimensional molybdenum disulfide	Gregory T. Forcherio, Luigi Bonacina, Jean-Pierre Wolf, D. Keith Roper
1037–1042	Development of low-fluorine solution route and UV photolysis process for $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ coated conductors	Yuanqing Chen, Wenwen Qu, Weibai Bian, Lingwei Li, Aditya S. Yerramilli, Na Li, Yang Song, Huimin Wu, Aijuan Wang, N. David Theodore, T. L. Alford
1043–1049	In situ electrochemical polymerization of poly(3,4-ethylenedioxithiophene) (PEDOT) for peripheral nerve interfaces	Jamie M. Murbach, Seth Currin, Adrienne Widener, Yuxin Tong, Shrirang Chhatre, Vivek Subramanian, David C. Martin, Blake N. Johnson, Kevin J. Otto
1050–1057	Ultra-low Pt-decorated NiCu bimetallic alloys nanoparticles supported on reduced graphene oxide for electro-oxidation of methanol	Ammar Bin Yousaf, Sajeda Adnan, Mutlaq Alsaydeh, Fathima Sifani Zavahir, Peter Kasak, Syed Javaid Zaidi
1058–1063	Non-doped and unsorted single-walled carbon nanotubes as carrier-selective, transparent, and conductive electrode for perovskite solar cells	Takahiro Sakaguchi, Il Jeon, Takaaki Chiba, Ahmed Shawky, Rong Xiang, Shohei Chiashi, Esko I. Kauppinen, Nam-Gyu Park, Yutaka Matsuo, Shigeo Maruyama
1064–1069	Mitochondrion-selective hemicyanine dyes suitable for fiber laser excitation two-photon microscopy	H. Moritomo, S. Onishi, N. Asamura, K. Matsumoto, Y. Suzuki, J. Kawamata
1070–1078	Synthesis and applications of near-infrared absorbing additive copper hydroxyphosphate	Elena Pérez-Barrado, Richard J. Darton, Dieter Guhl
1079–1084	Direct visualization of nano and microscale polymer morphologies in as-prepared and dialyzed polyampholyte hydrogels by electron microscopy techniques	Xinda Li, Hemant Charaya, Thuy Nguyen Thanh Tran, Byeongdu Lee, Jae-Young Cho, Hyun-Joong Chung
1085–1091	Epitaxy growth and characterization of InAs p-i-n photodetector through ion exchange for mid-infrared detection on Si substrates	Wan Khai Loke, Kian Hua Tan, Satrio Wicaksono, Soon Fatt Yoon
1092–1097	Optical response of finite-thickness ultrathin plasmonic films	Igor V. Bondarev, Hamze Mousavi, Vladimir M. Shalaev
1098–1103	Fabrication of optically active fiber mats via melt electrospinning	John P. Murphy, Molly C. Brockway, Jessica M. Andriolo, Nathan J. Sutton, Jack L. Skinner
1104–1110	Observation and characterization of memristive silver filaments in amorphous zinc-tin-oxide	Hiep N. Tran, Thomas J. Raeber, Zijun C. Zhao, David R. McKenzie, Anthony S. Holland, Dougal G. McCulloch, Billy J. Murdoch, Jim G. Partridge

1111–1118	Boron doping of ultrananocrystalline diamond films by thermal diffusion process	Pablo Tirado, Jesus J. Alcantar-Peña, Elida de Obaldia, Yuriy Kudriavtsev, Rafael García, Orlando Auciello
1119–1123	<i>Ab initio</i> lattice thermal conductivity of bulk and thin-film α-Al₂O₃	Bonny Dongre, Jesús Carrete, Natalio Mingo, Georg K.H. Madsen
1124–1128	Selective immobilization of bacterial light-harvesting proteins and their photoelectric responses	Rei Furukawa, Masaharu Kondo, Shunsuke Yajima, Kaori Harada, Kenji V. P. Nagashima, Morio Nagata, Kouji Iida, Takehisa Dewa, Mamoru Nango
1129–1134	Cellulose-based electroactive hydrogels for seaweed mimicking toward hybrid artificial habitats creation	Lorenzo Migliorini, Yunsong Yan, Federico Pezzotta, Francesca Maria Sole Veronesi, Cristina Lenardi, Sandra Rondinini, Tommaso Santaniello, Paolo Milani
1135–1138	Supercapacitor electrodes with high active mass loading	R. Poon, I. Zhitomirsky
1139–1144	The role of solvent charge donation in the stabilization of metal ions in aqueous solution	Daniel Koch, Sergei Manzhos
1145–1152	In-situ transmission electron microscopy studies of the crystallization of N-doped Ge-rich GeSbTe materials	Marta Agati, François Renaud, Daniel Benoit, Alain Claverie
1153–1157	Computational design of composite EMI shields through the control of pore morphology	Avi Bregman, Alan Taub, Eric Michielssen
1158–1166	The effect of carbon support on the oxygen reduction activity and durability of single-atom iron catalysts	Jin-Cheng Li, Dai-Ming Tang, Peng-Xiang Hou, Guo-Xian Li, Min Cheng, Chang Liu, Hui-Ming Cheng
1167–1172	Crystallization mechanism and kinetics of Cr₂Ge₂Te₆ phase change material	S. Hatayama, Y. Sutou, D. Ando, J. Koike
1173–1177	Bicarbonate reduction with semiconductor photocatalysts: study of effect of positive hole scavengers	Hanqing Pan, Michael D. Heagy
1178–1183	Study and modeling of melt pool evolution in selective laser melting process of SS316L	J. L. Tan, C. Tang, C. H. Wong
1184–1190	A laser-customizable insole for selective topical oxygen delivery to diabetic foot ulcers	H. Jiang, M. Ochoa, V. Jain, B. Ziae
1191–1196	Raman investigation of the air stability of 2H polytype HfSe₂ thin films	Antonio Cruz, Zafer Mutlu, Mihrimah Ozkan, Cengiz S. Ozkan
1197–1203	Impact of angular deviation from coincidence site lattice grain boundaries on hydrogen segregation and diffusion in α-iron	Mohamed H. Hamza, Mohamed A. Hendy, Tarek M. Hatem, Jaafar A. El-Awady
1204–1210	On the cytotoxicity of a cationic tertiary amine PEGylated nanogel as nanocarrier for anticancer therapies	Lizbeth A. Manzanares-Guevara, Angel Licea-Claverie, Irasema Oroz-Parra, Alexei F. Licea-Navarro
1211–1215	Photoelectrochemical response of Fe₂O₃ films reinforced with BiFeO₃ nanofibers	Albert Queraltó, Sanjay Mathur

1216–1223	Novel processing of Cu-bonded La–Ce–Fe–Co–Si magnetocaloric composites for magnetic refrigeration by low-temperature hot pressing	D. R. Peng, X. C. Zhong, J. H. Huang, H. Zhang, Y. L. Huang, X. T. Dong, D. L. Jiao, Z. W. Liu, R. V. Ramanujan
1224–1229	Europium(III)-induced water-soluble nano-aggregates of hyaluronic acid and chitosan: structure and fluorescence	Junlan Guo, Jianguo Tang, Jing Wang, Sui Mao, Haidong Li, Yao Wang, Jin Liu, Jing Wang, Yanxin Wang, Linjun Huang, Matt J. Kipper, Laurence A. Belfiore
1230–1235	Electrocatalytic activity of high-entropy alloys toward oxygen evolution reaction	Xiaodan Cui, Boliang Zhang, Congyuan Zeng, Shengmin Guo
1236–1243	Defect engineering in Boron Nitride for catalysis	Yi Ding, Fernand Torres-Davila, Ahmad Khater, David Nash, Richard Blair, Laurene Tetard
1244–1253	Perovskite solar cells based on hole-transporting conjugated polymers by direct arylation polycondensation	Wei Li, Takehiko Mori, Tsuyoshi Michinobu
1254–1260	Mechanical response of mesoscopic aluminum rings under uniaxial compression	Bin Zhang, Shahrior Ahmed, Shuai Shao, W.J. Meng
1261–1266	Fabrication of <i>n</i>-type flexible films with a double-layer structure by hybridizing Bi₂Se₃ and poly(vinyl alcohol)	Akira Ohnuma
1267–1273	Model for instrumented indentation of brittle open-cell foam	Robert F. Cook
1274–1278	Bending behavior of nickel-coated aluminum alloy 6156-T61	C.N. Panagopoulos, K.I. Giannakopoulos, H.P. Kyriakopoulou
1279–1284	Transmission surface plasmon resonance image detection by a smartphone camera	Chutiparn Lertvachirapaiboon, ChamMari Pothipor, Akira Baba, Kazunari Shinbo, Keizo Kato
1285–1291	The influence of stress field on Li electrodeposition in Li-metal battery	Vitaliy Yurkiv, Tara Foroozan, Ajaykrishna Ramasubramanian, Reza Shahbazian-Yassar, Farzad Mashayek
1292–1299	Thermoelectric and mechanical properties of Ag and Cu doped (GeTe)_{0.96}(Bi₂Te₃)_{0.04}	Gilad M. Guttmann, Reuven Gertner, Shmuel Samuha, Dana Ben-Ayoun, Shlomo Haroush, Yaniv Gelbstein
1300–1310	Integrating exploratory data analytics into ReaxFF parameterization	Efraín Hernández-Rivera, Souma Chowdhury, Shawn P. Coleman, Payam Ghassemi, Mark A. Tschopp
1311–1320	Fabrication, microstructure, and enhanced thermionic electron emission properties of vertically aligned nitrogen-doped nanocrystalline diamond nanorods	Kamatchi Jothiramalingam Sankaran, Sujit Deshmukh, Svetlana Koroneychuk, Chien-Jui Yeh, Joseph Palathinkal Thomas, Sien Drijkoningen, Paulius Pobedinskas, Marlies K. Van Bael, Johan Verbeeck, Keh-Chyang Leou, Kam-Tong Leung, Susanta Sinha Roy, I-Nan Lin, Ken Haenen
1321–1327	Strategies for elemental mapping from energy-filtered TEM of polymeric materials	Brooke Kuei, Bernd Kabius, Jennifer L. Gray, Enrique D. Gomez
1328–1334	Atomic-level insights through spectroscopic and transport measurements into the large-area synthesis of MoS₂ thin films	Hassana Samassekou, Asma Alkabsh, Kenneth Stiwinter, Avinash Khatri, Dipanjan Mazumdar
1335–1342	Synthesis of a thermo- and pH-sensitive comb-type graft copolymer by ionizing radiation	Victor H. Pino-Ramos, Emilio Bucio

- 1343–1351 **Stability of electron field emission in Q-carbon** Ariful Haque, Jagdish Narayan
- 1352–1357 **Si–TiN alloy Li-ion battery negative electrode materials made by N₂ gas milling** Y. Wang, Simeng Cao, Hui Liu, Min Zhu, M.N. Obrovac
- 1358–1362 **Can fluorine-doped tin Oxide, FTO, be more like indium-doped tin oxide, ITO? Reducing FTO surface roughness by introducing additional SnO₂ coating** David A. Keller, Hannah-Noa Barad, Eli Rosh-Hodesh, Arie Zaban, David Cahen
- 1363–1370 **Modification with ultrasonication for enhanced properties of cobalt-based zeolitic imidazolate framework** Shuyang Sun, Pengcheng Wang, Ming Lu
- 1371–1377 **Epitaxial entropy-stabilized oxides: growth of chemically diverse phases via kinetic bombardment** George N. Kotsonis, Christina M. Rost, David T. Harris, Jon-Paul Maria

Corrigenda

- 1378–1379 **Determination of adsorption-controlled growth windows of chalcogenide perovskites – CORRIGENDUM** Stephen A. Filippone, Yi-Yang Sun, R. Jaramillo
- 1380 **The influence of stress field on Li electrodeposition in Li–metal battery – CORRIGENDUM** Vitaliy Yurkiv, Tara Foroozan, Ajaykrishna Ramasubramanian, Reza Shahbazian-Yassar, Farzad Mashayek