

MRS **Advances**

Nanomaterials

<https://doi.org/10.1557/adv.2017.587> Published online by Cambridge University Press

MRS Advances: Nanomaterials

Associate Editors:

Marian Kennedy, *Clemson University*

Marilyn L. Minus, *Northeastern University*

Principal Editors:

P-Olivier Chapuis, *CNRS and INSA Lyon, France*

Stephanie Brock, *Wayne State University, USA*

Yu Han, *King Abdullah University of Science and Technology, Saudi Arabia*

Jia Zhu, *Nanjing University, China*

Ruth Schwaiger, *Karlsruhe Institute of Technology, Germany*

Sudha Mokkalapati, *Australian National University, Australia*

Esther Alarcon-Llado, *AMOLF, The Netherlands*
Ying Chen, *Rensselaer Polytechnic Institute, USA*
Donglei (Emma) Fan, *University of Texas at Austin, USA*

Xiaodong Chen, *Nanyang Technological University, Singapore*

MRS Advances Editorial Board:

Editor-in-Chief: David F. Bahr, *Purdue University*

Asa Barber, *University of Portsmouth, United Kingdom*

Meenakshi Dutt, *Rutgers University*

Elizabeth L. Fleischer, *Materials Research Society*

Marian Kennedy, *Clemson University*

Marilyn L. Minus, *Northeastern University*

Roger J. Narayan, *University of North Carolina/North Carolina State University*

Jeremy Theil, *Mountain View Energy*

Materials Research Society Editorial Office, Warrendale, PA:

Ellen W. Kracht, *Publications Manager*

Susan Dittrich, *Journals Editorial Assistant*

Kirby L. Morris, *Journals Production Assistant*

Eileen M. Kiley, *Director of Communications*

Disclaimer

Authors of each article appearing in this Journal are solely responsible for all contents in their article(s) including accuracy of the facts, statements, and citing resources. Facts and opinions are solely the personal statements of the respective authors and do not necessarily represent the views of the editors, the Materials Research Society, or Cambridge University Press.

MRS Advances (EISSN: 2059-8521) is published by Cambridge University Press, One Liberty Plaza, Floor 20, New York, NY 10006 for the Materials Research Society.

Copyright © 2017, 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 USA) is available from Copyright Clearance Center at: <http://www.copyright.com>, email: info@copyright.com.

Purchasing Options:

Premium Subscription- Premium Subscription includes current subscription and one year's lease access to the full MRS Online Proceedings Library Archive for \$7,219.00 / £4,888.00 / €6,647.00. *Subscription-* Subscription with perpetual access to the content subscribed to in a given year, including three years of back-file lease access to content from the MRS Online Proceedings Library Archive. The price for a 2017 subscription is \$3,019.00 / £1,948.00 / €2,625.00. *MRS Members-* Access to *MRS Advances* is available to all MRS members without charge.

Contact Details:

For all inquiries about pricing and access to *MRS Advances*, please get in touch via the following email addresses: online@cambridge.org (for the Americas); library.sales@cambridge.org (for UK, Europe, and rest of world).

cambridge.org/adv

CONTENTS

* Novel Field Effect Transistor Fabrication Based on Non-graphene 2D Materials	3675
Yu-Tao Li, Hai-Ming Zhao, He Tian, Peng-Zhi Shao, Xin Xin, Hui-Wen Cao, Ning-Qin Deng, Yi Yang, and Tian-Ling Ren	
Ultrathin Colloidal PbS/CdS Core/Shell Nanosheets	3685
Simeen Khan, Zhoufeng Jiang, Shashini M. Premathilka, Jianjun Hu, Andrey Voevodin, Paul J. Roland, Randy J. Ellingson, and Liangfeng Sun	
Tungsten Disulfide Nanodispersions for Inkjet Printing and Semiconducting Devices	3691
Jay A. Desai, Nirmal Adhikari, and Anupama B. Kaul	
Chemical Exfoliation of Black Phosphorus for Nanoelectronics Applications	3697
Misook Min, Gustavo A. Saenz, Gang Qiu, Adam Charnas, Peide Ye, and Anupama B. Kaul	
Synthesis of Colloidal PbS Nanosheets with Nearly 100% Success Rate	3703
Shashini M. Premathilaka, Zhoufeng Jiang, Antara Antu, Joey Leffler, Jianjun Hu, Ajit Roy, and Liangfeng Sun	
Single and Few-layer MoS₂: CVD Synthesis, Transference, and Photodetection Application	3709
Gustavo A. Saenz, Carlos de Anda Orea, and Anupama B. Kaul	
Nanoscale Characterization of WSe₂ for Opto-electronics Applications	3715
Nirmal Adhikari, Avra Bandyopadhyay, and Anupama Kaul	

*Invited Paper

Characterization of Few Layer Tungsten Diselenide Based FET Under Thermal Excitation	3721
Avra S. Bandyopadhyay, Gustavo A. Saenz, and Anupama Kaul	
Hybrid Zero-dimensional C₆₀ Clusters with Graphene – Synthesis, Fabrication and Transport Characteristics	3727
Srishti Chugh, Luis Echegoyen, and Anupama B. Kaul	
Towards Novel Graphene-enabled Diagnostic Assays with Improved Signal-to-noise Ratio	3733
Savannah J. Afsahi, Lauren E. Locascio, Deng Pan, Yingning Gao, Amy E. Walker, Francie E. Barron, Brett R. Goldsmith, and Mitchell B. Lerner	
Electrical Characterization and Nanoindentation of Opto-electro-mechanical Percolative Composites from 2D Layered Materials.	3741
Jorge A. Catalán, Ricardo Martínez, Yirong Lin, and Anupama B. Kaul	
Versatile Water-based Transfer of Large-area Graphene Films onto Flexible Substrates	3749
Maria Kim, Changfeng Li, Jannatul Susoma, Juha Riikonen, and Harri Lipsanen	

CORRIGENDUM

Reconstructing the Firing and Pigment Processing Technologies of Corinthian Polychrome Ceramics, 8-6th Centuries B.C.E.–CORRIGENDUM	3755
Catherine Klesner, Jay A. Stephens, Emilio Rodriguez-Alvarez, and Pamela B. Vandiver	
Experimentation in Manufacturing Zinc Orange Pigment–CORRIGENDUM	3757
Kathryn Harada, Aaron Shugar, and Rebecca Ploeger	