



## Content

- 1. The 2015 Division of Inorganic Chemistry Award, Sponsored by Chemistry of Materials**  
Jillian M. Buriak  
*Chemistry of Materials* 2015 27 (17), 5839-5839  
DOI: 10.1021/acs.chemmater.5b03201
- 2. Size-Dependent Appearance of Intrinsic Oxq “Activated Oxygen” Molecules on Ceria Nanoparticles**  
Xing Huang and Matthew J. Beck  
*Chemistry of Materials* 2015 27 (17), 5840-5844  
DOI: 10.1021/acs.chemmater.5b02426
- 3. Hollow and Microporous Zn–Porphyrin Networks: Outer Shape Dependent Ammonia Sensing by Quartz Crystal Microbalance**  
Joon Hyun Park, Ju Hong Ko, Seokjo Hong, Young Jun Shin, Nojin Park, Sungah Kang, Sang Moon Lee, Hae Jin Kim, and Seung Uk Son  
*Chemistry of Materials* 2015 27 (17), 5845-5848  
DOI: 10.1021/acs.chemmater.5b02385
- 4. Facile Preparation of Superelastic and Ultralow Dielectric Boron Nitride Nanosheet Aerogels via Freeze-Casting Process**  
Xiaoliang Zeng, Lei Ye, Shuhui Yu, Rong Sun, Jianbin Xu, and Ching-Ping Wong  
*Chemistry of Materials* 2015 27 (17), 5849-5855  
DOI: 10.1021/acs.chemmater.5b00505
- 5. Magnetite Fe<sub>3</sub>O<sub>4</sub> (111) Surfaces: Impact of Defects on Structure, Stability, and Electronic Properties**  
Junghyun Noh, Osman I. Osman, Saadullah G. Aziz, Paul Winget, and Jean-Luc Brédas  
*Chemistry of Materials* 2015 27 (17), 5856-5867  
DOI: 10.1021/acs.chemmater.5b02885
- 6. Nucleation and Growth of the HfO<sub>2</sub> Dielectric Layer for Graphene-Based Devices**  
Il-Kwon Oh, Jukka Tanskanen, Hanearl Jung, Kangsik Kim, Mi Jin Lee, Zonghoon Lee, Seoung-Ki Lee, Jong-Hyun Ahn, Chang Wan Lee, Kwanpyo Kim, Hyungjun Kim, and Han-Bo-Ram Lee  
*Chemistry of Materials* 2015 27 (17), 5868-5877  
DOI: 10.1021/acs.chemmater.5b01226
- 7. First-Principles Study of Molybdenum Chalcogenide Halide Nanowires for Mg-Ion Battery Cathode Application**  
Pei Shan Emmeline Yeo and Man-Fai Ng  
*Chemistry of Materials* 2015 27 (17), 5878-5885  
DOI: 10.1021/acs.chemmater.5b01231
- 8. High Stability of Immobilized Polyoxometalates on TiO<sub>2</sub> Nanoparticles and Nanoporous Films for Robust, Light-Induced Water Oxidation**  
Sarah M. Lauinger, Jordan M. Sumliner, Qiushi Yin, Zihao Xu, Guijie Liang, Elliot N. Glass, Tianquan Lian, and Craig L. Hill  
*Chemistry of Materials* 2015 27 (17), 5886-5891  
DOI: 10.1021/acs.chemmater.5b01248
- 9. Narrow-Band Green-Emitting Phosphor Ba<sub>2</sub>LiSi<sub>7</sub>AlN<sub>12</sub>:Eu<sup>2+</sup> with High Thermal Stability Discovered by a Single Particle Diagnosis Approach**  
Takashi Takeda, Naoto Hirotsuki, Shiro Funahshi, and Rong-Jun Xie

*Chemistry of Materials* 2015 27 (17), 5892-5898

DOI: 10.1021/acs.chemmater.5b01464

**10. First-Principles Design and Analysis of an Efficient, Pb-Free Ferroelectric Photovoltaic Absorber Derived from ZnSnO<sub>3</sub>**

Brian Kolb and Alexie M. Kolpak

*Chemistry of Materials* 2015 27 (17), 5899-5906

DOI: 10.1021/acs.chemmater.5b01601

**11. High-Pressure Synthesis of Novel Boron Oxynitride B<sub>6</sub>N<sub>4</sub>O<sub>3</sub> with Sphalerite Type Structure**

Shrikant Bhat, Leonore Wiehl, Leopoldo Molina-Luna, Enrico Mugnaioli, Stefan Lauterbach, Sabrina Sicolo, Peter Kroll, Michael Duerrschnabel, Norimasa Nishiyama, Ute Kolb, Karsten Albe, Hans-Joachim Kleebe, and Ralf Riedel

*Chemistry of Materials* 2015 27 (17), 5907-5914

DOI: 10.1021/acs.chemmater.5b01706

**12. Atomic Layer Deposition of FeO on Pt(111) by Ferrocene Adsorption and Oxidation**

Rajib Paul, Ronald G. Reifenberger, Timothy S. Fisher, and Dmitry Y. Zemlyanov

*Chemistry of Materials* 2015 27 (17), 5915-5924

DOI: 10.1021/acs.chemmater.5b01778

**13. Molecular Design of Light-Responsive Hydrogels, For in Situ Generation of Fast and Reversible Valves for Microfluidic Applications**

Jeroen ter Schiphorst, Simon Coleman, Jelle E. Stumpel, Aymen Ben Azouz, Dermot Diamond, and Albertus P. H. J. Schenning

*Chemistry of Materials* 2015 27 (17), 5925-5931

DOI: 10.1021/acs.chemmater.5b01860

**14. Mg Desolvation and Intercalation Mechanism at the Mo<sub>6</sub>S<sub>8</sub> Chevrel Phase Surface**

Liwen F. Wan, Brian R. Perdue, Christopher A. Appleby, and David Prendergast

*Chemistry of Materials* 2015 27 (17), 5932-5940

DOI: 10.1021/acs.chemmater.5b01907

**15. Development and Structure/Property Relationship of New Electron Accepting Polymers Based on Thieno[2',3':4,5]pyrido[2,3-g]thieno[3,2-c]quinoline-4,10-dione for All-Polymer Solar Cells**

In Hwan Jung, Donglin Zhao, Jaeyoung Jang, Wei Chen, Erik S. Landry, Luyao Lu, Dmitri V. Talapin, and Luping Yu

*Chemistry of Materials* 2015 27 (17), 5941-5948

DOI: 10.1021/acs.chemmater.5b01928

**16. Template Synthesis of CuInS<sub>2</sub> Nanocrystals from In<sub>2</sub>S<sub>3</sub> Nanoplates and Their Application as Counter Electrodes in Dye-Sensitized Solar Cells**

Bingkun Chen, Shuai Chang, Deyao Li, Liangliang Chen, Yongtian Wang, Tao Chen, Bingsuo Zou, Haizheng Zhong, and Andrey L. Rogach

*Chemistry of Materials* 2015 27 (17), 5949-5956

DOI: 10.1021/acs.chemmater.5b01971

**17. Prediction of Stable Nitride Perovskites**

Rafael Sarmiento-Pérez, Tiago F. T. Cerqueira, Sabine Körbel, Silvana Botti, and Miguel A. L. Marques

*Chemistry of Materials* 2015 27 (17), 5957-5963

DOI: 10.1021/acs.chemmater.5b02026

**18. Confirming the Dual Role of Etchants during the Enrichment of Semiconducting Single Wall Carbon Nanotubes by Chemical Vapor Deposition**

Imad Ibrahim, Jana Kalbacova, Vivienne Engemaier, Jinbo Pang, Raul D. Rodriguez, Daniel Grimm, Thomas Gemming, Dietrich R. T. Zahn, Oliver G. Schmidt, Jürgen Eckert, and Mark H. Rümmeli

*Chemistry of Materials* 2015 27 (17), 5964-5973

DOI: 10.1021/acs.chemmater.5b02037

- 19. Copper Nanofilament Formation during Unipolar Resistance Switching of Electrodeposited Cuprous Oxide**  
Sanaz Yazdanparast, Jakub A. Koza, and Jay A. Switzer  
*Chemistry of Materials* **2015** 27 (17), 5974-5981  
DOI: 10.1021/acs.chemmater.5b02041
- 20. Discovery of a Sodium-Ordered Form of Na<sub>3</sub>V<sub>2</sub>(PO<sub>4</sub>)<sub>3</sub> below Ambient Temperature**  
Jean-Noël Chotard, Gwenaëlle Rouse, Rénaud David, Olivier Mentré, Matthieu Courty, and Christian Masquelier  
*Chemistry of Materials* **2015** 27 (17), 5982-5987  
DOI: 10.1021/acs.chemmater.5b02092
- 21. Low-Temperature Atomic Layer Deposition of High Purity, Smooth, Low Resistivity Copper Films by Using Amidinate Precursor and Hydrogen Plasma**  
Zheng Guo, Hao Li, Qiang Chen, Lijun Sang, Lizhen Yang, Zhongwei Liu, and Xinwei Wang  
*Chemistry of Materials* **2015** 27 (17), 5988-5996  
DOI: 10.1021/acs.chemmater.5b02137
- 22. Interplay of Intramolecular Noncovalent Coulomb Interactions for Semicrystalline Photovoltaic Polymers**  
Mohammad Afsar Uddin, Tack Ho Lee, Shuhao Xu, Song Yi Park, Taehyo Kim, Seyeong Song, Thanh Luan Nguyen, Seo-jin Ko, Sungu Hwang, Jin Young Kim, and Han Young Woo  
*Chemistry of Materials* **2015** 27 (17), 5997-6007  
DOI: 10.1021/acs.chemmater.5b02251
- 23. Explaining Performance-Limiting Mechanisms in Fluorophosphate Na-Ion Battery Cathodes through Inactive Transition-Metal Mixing and First-Principles Mobility Calculations**  
Ian L. Matts, Stephen Dacek, Tomasz K. Pietrzak, Rahul Malik, and Gerbrand Ceder  
*Chemistry of Materials* **2015** 27 (17), 6008-6015  
DOI: 10.1021/acs.chemmater.5b02299
- 24. Materials Design Rules for Multivalent Ion Mobility in Intercalation Structures**  
Ziqin Rong, Rahul Malik, Pieremanuele Canepa, Gopalakrishnan Sai Gautam, Miao Liu, Anubhav Jain, Kristin Persson, and Gerbrand Ceder  
*Chemistry of Materials* **2015** 27 (17), 6016-6021  
DOI: 10.1021/acs.chemmater.5b02342
- 25. Anatase TiO<sub>2</sub>: Better Anode Material Than Amorphous and Rutile Phases of TiO<sub>2</sub> for Na-Ion Batteries**  
Dawei Su, Shixue Dou, and Guoxiu Wang  
*Chemistry of Materials* **2015** 27 (17), 6022-6029  
DOI: 10.1021/acs.chemmater.5b02348
- 26. Dual Europium Luminescence Centers in Colloidal Ga<sub>2</sub>O<sub>3</sub> Nanocrystals: Controlled in Situ Reduction of Eu(III) and Stabilization of Eu(II)**  
Arunasish Layek, Baran Yildirim, Vahid Ghodsi, Lisa N. Hutfluss, Manu Hegde, Ting Wang, and Pavle V. Radovanovic  
*Chemistry of Materials* **2015** 27 (17), 6030-6037  
DOI: 10.1021/acs.chemmater.5b02383
- 27. Low-Bandgap Small Molecules as Non-Fullerene Electron Acceptors Composed of Benzothiadiazole and Diketopyrrolopyrrole for All Organic Solar Cells**  
Jae Woong Jung and Won Ho Jo  
*Chemistry of Materials* **2015** 27 (17), 6038-6043  
DOI: 10.1021/acs.chemmater.5b02480

- 28. Investigating the Reversibility of Structural Modifications of  $\text{Li}_x\text{Ni}_y\text{Mn}_z\text{Co}_{1-y-z}\text{O}_2$  Cathode Materials during Initial Charge/Discharge, at Multiple Length Scales**  
Sooyeon Hwang, Seung Min Kim, Seong-Min Bak, Kyung Yoon Chung, and Wonyoung Chang  
*Chemistry of Materials* **2015** 27 (17), 6044-6052  
DOI: 10.1021/acs.chemmater.5b02457
- 29. Low Temperature Colloidal Synthesis of Silicon Nanorods from Isotetrasilane, Neopentasilane, and Cyclohexasilane**  
Xiaotang Lu, Kenneth J. Anderson, Philip Boudjouk, and Brian A. Korgel  
*Chemistry of Materials* **2015** 27 (17), 6053-6058  
DOI: 10.1021/acs.chemmater.5b02487
- 30. Enhanced Nanoparticle Size Control by Extending LaMer's Mechanism**  
Erika C. Vreeland, John Watt, Gretchen B. Schober, Bradley G. Hance, Mariah J. Austin, Andrew D. Price, Benjamin D. Fellows, Todd C. Monson, Nicholas S. Hudak, Lorena Maldonado-Camargo, Ana C. Bohorquez, Carlos Rinaldi, and Dale L. Huber  
*Chemistry of Materials* **2015** 27 (17), 6059-6066  
DOI: 10.1021/acs.chemmater.5b02510
- 31. Tuning Electrical Properties through Control of  $\text{TiSe}_2$  Thickness in  $(\text{BiSe})_{1+\delta}(\text{TiSe}_2)_n$  Compounds**  
Suzannah R. Wood, Devin R. Merrill, Matthias Falmbigl, Daniel B. Moore, Jeffrey Ditto, Marco Esters, and David C. Johnson  
*Chemistry of Materials* **2015** 27 (17), 6067-6076  
DOI: 10.1021/acs.chemmater.5b02572
- 32. Dithienosilole-Based Small-Molecule Organic Solar Cells with an Efficiency over 8%: Investigation of the Relationship between the Molecular Structure and Photovoltaic Performance**  
Wang Ni, Miaomiao Li, Feng Liu, Xiangjian Wan, Huanran Feng, Bin Kan, Qian Zhang, Hongtao Zhang, and Yongsheng Chen  
*Chemistry of Materials* **2015** 27 (17), 6077-6084  
DOI: 10.1021/acs.chemmater.5b02616
- 33. Graphene-Silicon Heterostructures at the Two-Dimensional Limit**  
Brian Kiraly, Andrew J. Mannix, Mark C. Hersam, and Nathan P. Guisinger  
*Chemistry of Materials* **2015** 27 (17), 6085-6090  
DOI: 10.1021/acs.chemmater.5b02602
- 34. Parallel Arrays of Sub-10 nm Aligned Germanium Nanofins from an In Situ Metal Oxide Hardmask using Directed Self-Assembly of Block Copolymers**  
Cian Cummins, Anushka Gangnaik, Roisin A. Kelly, Alan J. Hydes, John O'Connell, Nikolay Petkov, Yordan M. Georgiev, Dipu Borah, Justin D. Holmes, and Michael A. Morris  
*Chemistry of Materials* **2015** 27 (17), 6091-6096  
DOI: 10.1021/acs.chemmater.5b02608
- 35. Hybrid Sensors Fabricated by Inkjet Printing and Holographic Patterning**  
Izabela Naydenova, Julien Grand, Tatsiana Mikulchyk, Suzanne Martin, Vincent Toal, Veselina Georgieva, Sebastien Thomas, and Svetlana Mintova  
*Chemistry of Materials* **2015** 27 (17), 6097-6101  
DOI: 10.1021/acs.chemmater.5b02629
- 36. Measuring the Time-Dependent Monomer Concentration during the Hot-Injection Synthesis of Colloidal Nanocrystals**  
Natalia Razgoniaeva, Amit Acharya, Narayan Sharma, Prakash Adhikari, Martin Shaughnessy, Pavel Moroz, Dmitriy Khon, and Mikhail Zamkov  
*Chemistry of Materials* **2015** 27 (17), 6102-6108  
DOI: 10.1021/acs.chemmater.5b02676

- 37. Narrow-Band Green Emitting Nitridolithoalumosilicate Ba[Li<sub>2</sub>(Al<sub>2</sub>Si<sub>2</sub>)N<sub>6</sub>]:Eu<sup>2+</sup> with Framework Topology whj for LED/LCD-Backlighting Applications**  
Philipp Strobel, Sebastian Schmiechen, Markus Siegert, Andreas Tücks, Peter J. Schmidt, and Wolfgang Schnick  
*Chemistry of Materials* **2015** 27 (17), 6109-6115  
DOI: 10.1021/acs.chemmater.5b02702
- 38. Surfactant Directed Growth of Gold Metal Nanoplates by Chemical Vapor Deposition**  
Matthew B. E. Griffiths, Sara E. Koponen, David J. Mandia, Jennifer F. McLeod, Jason P. Coyle, Jeffrey J. Sims, Javier B. Giorgi, Eric R. Sirianni, Glenn P. A. Yap, and Seán T. Barry  
*Chemistry of Materials* **2015** 27 (17), 6116-6124  
DOI: 10.1021/acs.chemmater.5b02712
- 39. Microwave-Assisted Ge<sub>1-x</sub>Sn<sub>x</sub> Nanowire Synthesis: Precursor Species and Growth Regimes**  
Michael S. Seifner, Felix Biegger, Alois Lugstein, Johannes Bernardi, and Sven Barth  
*Chemistry of Materials* **2015** 27 (17), 6125-6130  
DOI: 10.1021/acs.chemmater.5b02757
- 40. Oscillatory Microprocessor for Growth and in Situ Characterization of Semiconductor Nanocrystals**  
Milad Abolhasani, Connor W. Coley, Lisi Xie, Ou Chen, Mounji G. Bawendi, and Klavs F. Jensen  
*Chemistry of Materials* **2015** 27 (17), 6131-6138  
DOI: 10.1021/acs.chemmater.5b02821
- 41. Bi<sub>0.94</sub>Sb<sub>1.06</sub>S<sub>3</sub> Nanorod Cluster Anodes for Sodium-Ion Batteries: Enhanced Reversibility by the Synergistic Effect of the Bi<sub>2</sub>S<sub>3</sub>-Sb<sub>2</sub>S<sub>3</sub> Solid Solution**  
Yubao Zhao and Arumugam Manthiram  
*Chemistry of Materials* **2015** 27 (17), 6139-6145  
DOI: 10.1021/acs.chemmater.5b02833
- 42. Effect of Al<sub>2</sub>O<sub>3</sub> Coating on Stabilizing LiNi<sub>0.4</sub>Mn<sub>0.4</sub>Co<sub>0.2</sub>O<sub>2</sub> Cathodes**  
Anna M. Wise, Chunmei Ban, Johanna Nelson Weker, Sumohan Misra, Andrew S. Cavanagh, Zhuangchun Wu, Zheng Li, M. Stanley Whittingham, Kang Xu, Steven M. George, and Michael F. Toney  
*Chemistry of Materials* **2015** 27 (17), 6146-6154  
DOI: 10.1021/acs.chemmater.5b02952
- 43. Naphthalocyanine-Based Biodegradable Polymeric Nanoparticles for Image-Guided Combinatorial Phototherapy**  
Olena Taratula, Bhuvana S. Doddapaneni, Canan Schumann, Xiaoning Li, Shay Bracha, Milan Milovancev, Adam W. G. Alani, and Oleh Taratula  
*Chemistry of Materials* **2015** 27 (17), 6155-6165  
DOI: 10.1021/acs.chemmater.5b03128