



Content

1. How We Choose Cover Images

Jillian M. Buriak

Chemistry of Materials 2015 27 (16), 5451-5452

DOI: 10.1021/acs.chemmater.5b03094

2. Correlating Structure and Function in Organic Electronics: From Single Molecule Transport to Singlet Fission

Jonathan Z. Low, Samuel N. Sanders, and Luis M. Campos

Chemistry of Materials 2015 27 (16), 5453-5463

DOI: 10.1021/cm502366x

3. Nanocomposites of Gold Nanoparticles@Molecularly Imprinted Polymers: Chemistry, Processing, and Applications in Sensors

Randa Ahmad, Nébéwia Griffete, Aazdine Lamouri, Nordin Felidj, Mohamed M. Chehimi, and Claire Mangeney

Chemistry of Materials 2015 27 (16), 5464-5478

DOI: 10.1021/acs.chemmater.5b00138

4. Bulk-Phase Ion Conduction in Cocrystalline LiCl·N,N-Dimethylformamide: A New Paradigm for Solid Electrolytes Based upon the Pearson Hard–Soft Acid–Base Concept

Parameswara R. Chinnam, Rebecca N. Clymer, Abdel Aziz Jalil, Stephanie L. Wunder, and Michael J. Zdilla

Chemistry of Materials 2015 27 (16), 5479-5482

DOI: 10.1021/acs.chemmater.5b00940

5. Synthesis of a Bimetallic Dodecaborate LiNaB₁₂H₁₂ with Outstanding Superionic Conductivity

Liqing He, Hai-Wen Li, Hironori Nakajima, Nikolay Tumanov, Yaroslav Filinchuk, Son-Jong Hwang, Manish Sharma, Hans Hagemann, and Etsuo Akiba

Chemistry of Materials 2015 27 (16), 5483-5486

DOI: 10.1021/acs.chemmater.5b01568

6. Synthesis and Electrical Properties of Covalent Organic Frameworks with Heavy Chalcogens

Selma Duhović and Mircea Dincă

Chemistry of Materials 2015 27 (16), 5487-5490

DOI: 10.1021/acs.chemmater.5b02358

7. Origin of High Li⁺ Conduction in Doped Li₇La₃Zr₂O₁₂ Garnets

Yan Chen, Ezhiylmurugan Rangasamy, Chengdu Liang, and Ke An

Chemistry of Materials 2015 27 (16), 5491-5494

DOI: 10.1021/acs.chemmater.5b02521

8. Metal–Organic Frameworks Encapsulated in Photocleavable Capsules for UV-Light Triggered Catalysis

Willem P. R. Deleu, Guadalupe Rivero, Roberto F. A. Teixeira, Filip E. Du Prez, and Dirk E. De Vos

Chemistry of Materials 2015 27 (16), 5495-5502

DOI: 10.1021/acs.chemmater.5b01140

9. In-Channel and In-Plane Li Ion Diffusions in the Superionic Conductor Li₁₀GeP₂S₁₂ Probed by Solid-State NMR

Xinmiao Liang, Liying Wang, Yangming Jiang, Jian Wang, Huan Luo, Chaoyang Liu, and Jiwen Feng

Chemistry of Materials 2015 27 (16), 5503-5510

DOI: 10.1021/acs.chemmater.5b01384

10. Microscopic Origin of Thermal Conductivity Reduction in Disordered van der Waals Solids

Paul Erhart, Per Hyldgaard, and Daniel O. Lindroth

Chemistry of Materials **2015** 27 (16), 5511-5518

DOI: 10.1021/acs.chemmater.5b01509

11. KEu(MoO₄)₂: Polymorphism, Structures, and Luminescent Properties

Vladimir A. Morozov, Alla V. Arakcheeva, Philip Pattison, Katrien W. Meert, Philippe F. Smet, Dirk Poelman, Nicolas Gauquelin, Johan Verbeeck, Artem M. Abakumov, and Joke Hadermann

Chemistry of Materials **2015** 27 (16), 5519-5530

DOI: 10.1021/acs.chemmater.5b01622

12. The Effect of Fluoroethylene Carbonate as an Additive on the Solid Electrolyte Interphase on Silicon Lithium-Ion Electrodes

Kjell Schroder, Judith Alvarado, Thomas A. Yersak, Juchuan Li, Nancy Dudney, Lauren J. Webb, Ying Shirley Meng, and Keith J. Stevenson

Chemistry of Materials **2015** 27 (16), 5531-5542

DOI: 10.1021/acs.chemmater.5b01627

13. Microwave-Assisted Solvothermal Synthesis of Three Polymorphs of LiCoPO₄ and Their Electrochemical Properties

Karl J. Kreder, III, Gaurav Assat, and Arumugam Manthiram

Chemistry of Materials **2015** 27 (16), 5543-5549

DOI: 10.1021/acs.chemmater.5b01670

14. Mapping Structural Changes in Electrode Materials: Application of the Hybrid Eigenvector-Following Density Functional Theory (DFT) Method to Layered Li_{0.5}MnO₂

Ieuan D. Seymour, Sudip Chakraborty, Derek S. Middlemiss, David J. Wales, and Clare P. Grey

Chemistry of Materials **2015** 27 (16), 5550-5561

DOI: 10.1021/acs.chemmater.5b01674

15. Interfacial Mineral–Peptide Properties of a Mineral Binding Peptide from Osteonectin and Bone-like Apatite

Irina Matlahov, Taly Iline-Vul, Meital Abayev, Elizabeth M. Y. Lee, Merav Nadav-Tsubery, Keren Keinan-Adamsky, Jeffrey J. Gray, and Gil Goobes

Chemistry of Materials **2015** 27 (16), 5562-5569

DOI: 10.1021/acs.chemmater.5b01696

16. Optimizing Composition and Morphology for Large-Grain Perovskite Solar Cells via Chemical Control

Hsinhan Tsai, Wanyi Nie, Pradeep Cheruku, Nathan H. Mack, Ping Xu, Gautam Gupta, Aditya D. Mohite, and Hsing-Lin Wang

Chemistry of Materials **2015** 27 (16), 5570-5576

DOI: 10.1021/acs.chemmater.5b02378

17. Synthesis of Mesoporous Silica/Reduced Graphene Oxide Sandwich-Like Sheets with Enlarged and “Funneling” Mesochannels

Yupu Liu, Wei Li, Dengke Shen, Chun Wang, Xiaomin Li, Manas Pal, Renyuan Zhang, Lei Chen, Chi Yao, Yong Wei, Yuhui Li, Yujuan Zhao, Hongwei Zhu, Wenxing Wang, Ahmed Mohamed El-Toni, Fan Zhang, and Dongyuan Zhao

Chemistry of Materials **2015** 27 (16), 5577-5586

DOI: 10.1021/acs.chemmater.5b01812

18. Amorphous In–Ga–Zn Oxide Semiconducting Thin Films with High Mobility from Electrochemically Generated Aqueous Nanocluster Inks

Athavan Nadarajah, Mahkah Z. B. Wu, Kevin Archila, Matthew G. Kast, Adam M. Smith, Tsung H. Chiang, Douglas A. Keszler, John F. Wager, and Shannon W. Boettcher

Chemistry of Materials **2015** 27 (16), 5587-5596

DOI: 10.1021/acs.chemmater.5b01813

19. Impact of Molecular Orientation and Spontaneous Interfacial Mixing on the Performance of Organic Solar Cells

Guy O. Ngongang Ndjawa, Kenneth R. Graham, Ruipeng Li, Sarah M. Conron, Patrick Erwin, Kang Wei Chou, George F. Burkhard, Kui Zhao, Eric T. Hoke, Mark E. Thompson, Michael D. McGehee, and Aram Amassian

Chemistry of Materials 2015 27 (16), 5597-5604

DOI: 10.1021/acs.chemmater.5b01845

20. Influence of Interparticle Structure on the Steady-State and Transient Current within Arrays of Thiocyanate-Treated PbS Nanocubes

Martin R. McPhail and Emily A. Weiss

Chemistry of Materials 2015 27 (16), 5605-5613

DOI: 10.1021/acs.chemmater.5b01861

21. Surface Plasmon Resonance Properties of Silver Nanocrystals Differing in Size and Coating Agent Ordered in 3D Supracrystals

Jingjing Wei, Nicolas Schaeffer, Pierre-Antoine Albouy, and Marie-Paule Pileni

Chemistry of Materials 2015 27 (16), 5614-5621

DOI: 10.1021/acs.chemmater.5b01940

22. Thin-Film Preparation and Characterization of Cs₃Sb₂I₉: A Lead-Free Layered Perovskite Semiconductor

Bayrammurad Saporov, Feng Hong, Jon-Paul Sun, Hsin-Sheng Duan, Weiwei Meng, Samuel

Cameron, Ian G. Hill, Yanfa Yan, and David B. Mitzi

Chemistry of Materials 2015 27 (16), 5622-5632

DOI: 10.1021/acs.chemmater.5b01989

23. Investigating the Energy Storage Mechanism of SnS₂-rGO Composite Anode for Advanced Na-Ion Batteries

Chuze Ma, Jing Xu, Judith Alvarado, Baihua Qu, James Somerville, Jim Yang Lee, and Ying Shirley Meng

Chemistry of Materials 2015 27 (16), 5633-5640

DOI: 10.1021/acs.chemmater.5b01984

24. How Supercooled Liquid Phase-Change Materials Crystallize: Snapshots after Femtosecond Optical Excitation

Peter Zalden, Alexander von Hoegen, Patrick Landreman, Matthias Wuttig, and Aaron M. Lindenberg

Chemistry of Materials 2015 27 (16), 5641-5646

DOI: 10.1021/acs.chemmater.5b02011

25. Combining Fast Li-Ion Battery Cycling with Large Volumetric Energy Density: Grain Boundary Induced High Electronic and Ionic Conductivity in Li₄Ti₅O₁₂ Spheres of Densely Packed Nanocrystallites

Chao Wang, Shuan Wang, Yan-Bing He, Linkai Tang, Cuiping Han, Cheng Yang, Marnix

Wagemaker, Baohua Li, Quan-Hong Yang, Jang-Kyo Kim, and Feiyu Kang

Chemistry of Materials 2015 27 (16), 5647-5656

DOI: 10.1021/acs.chemmater.5b02027

26. Understanding Nanopore Window Distortions in the Reversible Molecular Valve Zeolite RHO

Salvador R. G. Balestra, Said Hamad, A. Rabdel Ruiz-Salvador, Virginia Domínguez-García, Patrick J. Merkling, David Dubbeldam, and Sofia Calero

Chemistry of Materials 2015 27 (16), 5657-5667

DOI: 10.1021/acs.chemmater.5b02103

27. Super Stretchable Electroactive Elastomer Formation Driven by Aniline Trimer Self-Assembly

Jing Chen, Baolin Guo, Thomas W. Eyster, and Peter X. Ma

Chemistry of Materials 2015 27 (16), 5668-5677

DOI: 10.1021/acs.chemmater.5b02086

28. Off-Resonant Gold Superstructures as Ultrabright Minimally Invasive Surface-Enhanced Raman Scattering (SERS) Probes

Limei Tian, Sirimuvva Tadepalli, Max Fei, Jeremiah J. Morrissey, Evan D. Kharasch, and Srikanth Singamaneni

Chemistry of Materials 2015 27 (16), 5678-5684

DOI: 10.1021/acs.chemmater.5b02100

29. Establishing Efficient Cobalt-Based Catalytic Sites for Oxygen Evolution on a Ta₃N₅ Photocatalyst

Ela Nurlaela, Samy Ould-Chikh, Isabelle Llorens, Jean-Louis Hazemann, and Kazuhiro Takahashi
Chemistry of Materials **2015** 27 (16), 5685-5694

DOI: 10.1021/acs.chemmater.5b02139

30. (CaO)(FeSe): A Layered Wide-Gap Oxychalcogenide Semiconductor

Fei Han, Di Wang, Christos D. Malliakas, Mihai Sturza, Duck Young Chung, Xiangang Wan, and Mercouri G. Kanatzidis

Chemistry of Materials **2015** 27 (16), 5695-5701

DOI: 10.1021/acs.chemmater.5b02164

31. Porous Two-Dimensional Nanosheets Converted from Layered Double Hydroxides and Their Applications in Electrocatalytic Water Splitting

Hanfeng Liang, Linsen Li, Fei Meng, Lianna Dang, Junqiao Zhuo, Audrey Forticaux, Zhoucheng Wang, and Song Jin

Chemistry of Materials **2015** 27 (16), 5702-5711

DOI: 10.1021/acs.chemmater.5b02177

32. Structure Tracking Aided Design and Synthesis of Li₃V₂(PO₄)₃ Nanocrystals as High-Power Cathodes for Lithium Ion Batteries

Liping Wang, Jianming Bai, Peng Gao, Xiaoya Wang, J. Patrick Looney, and Feng Wang

Chemistry of Materials **2015** 27 (16), 5712-5718

DOI: 10.1021/acs.chemmater.5b02236

33. Mesoporous and Graphitic Carbide-Derived Carbons as Selective and Stable Catalysts for the Dehydrogenation Reaction

Jan Gläsel, Jiangyong Diao, Zhenbao Feng, Markus Hilgart, Thomas Wolker, Dang Sheng Su, and Bastian J. M. Etzold

Chemistry of Materials **2015** 27 (16), 5719-5725

DOI: 10.1021/acs.chemmater.5b02262

34. Two-Dimensional Mesoporous Cobalt Sulfide Nanosheets as a Superior Anode for a Li-Ion Battery and a Bifunctional Electrocatalyst for the Li-O₂ System

Palanichamy Sennu, Maria Christy, Vanchiappan Aravindan, Young-Gi Lee, Kee Suk Nahm, and Yun-Sung Lee

Chemistry of Materials **2015** 27 (16), 5726-5735

DOI: 10.1021/acs.chemmater.5b02364

35. Copper Phosphate as a Cathode Material for Rechargeable Li Batteries and Its Electrochemical Reaction Mechanism

Guiming Zhong, Jingyu Bai, Paul N. Duchesne, Matthew J. McDonald, Qi Li, Xu Hou, Joel A. Tang, Yu Wang, Wengao Zhao, Zhengliang Gong, Peng Zhang, Riqiang Fu, and Yong Yang

Chemistry of Materials **2015** 27 (16), 5736-5744

DOI: 10.1021/acs.chemmater.5b02290

36. High-Performance Li(Li_{0.18}Ni_{0.15}Co_{0.15}Mn_{0.52})O₂@Li₄M₅O₁₂ Heterostructured Cathode Material Coated with a Lithium Borate Oxide Glass Layer

Xiaofei Bian, Qiang Fu, Hailong Qiu, Fei Du, Yu Gao, Lijie Zhang, Bo Zou, Gang Chen, and Yingjin Wei

Chemistry of Materials **2015** 27 (16), 5745-5754

DOI: 10.1021/acs.chemmater.5b02331

37. Features of KF and NaF Postdeposition Treatments of Cu(In,Ga)Se₂ Absorbers for High Efficiency Thin Film Solar Cells

Patrick Reinhard, Benjamin Bissig, Fabian Pianezzi, Enrico Avancini, Harald Hagendorfer, Debora Keller, Peter Fuchs, Max Döbeli, Carlos Vigo, Paolo Crivelli, Shiro Nishiwaki, Stephan Buecheler, and Ayodhya N. Tiwari

Chemistry of Materials **2015** 27 (16), 5755-5764

DOI: 10.1021/acs.chemmater.5b02335

38. Introducing Solubility Control for Improved Organic P-Type Dopants

Jun Li, Guangwu Zhang, Daniella M. Holm, Ian E. Jacobs, Bin Yin, Pieter Stroeve, Mark Mascal, and Adam J. Moulé

Chemistry of Materials 2015 27 (16), 5765-5774

DOI: 10.1021/acs.chemmater.5b02340

39. Stability and Core-Level Signature of Nitrogen Dopants in Carbonaceous Materials

Ziqi Tian, Sheng Dai, and De-en Jiang

Chemistry of Materials 2015 27 (16), 5775-5781

DOI: 10.1021/acs.chemmater.5b02370

40. Belousov–Zhabotinsky Hydrogels: Relationship between Hydrogel Structure and Mechanical Response

Ryan C. Kramb, Philip R. Buskohl, Matthew J. Dalton, and Richard A. Vaia

Chemistry of Materials 2015 27 (16), 5782-5790

DOI: 10.1021/acs.chemmater.5b02412

41. High Temperature Thermoelectric Properties of Yb₁₄MnSb₁₁ Prepared from Reaction of MnSb with the Elements

Jason H. Grebenkemper, Yufei Hu, Dashiell Barrett, Pawan Gogna, Chen-Kuo Huang, Sabah K. Bux, and Susan M. Kauzlarich

Chemistry of Materials 2015 27 (16), 5791-5798

DOI: 10.1021/acs.chemmater.5b02446

42. How General is the Conversion Reaction in Mg Battery Cathode: A Case Study of the Magnesiation of α -MnO₂

Chen Ling, Ruigang Zhang, Timothy S. Arthur, and Fuminori Mizuno

Chemistry of Materials 2015 27 (16), 5799-5807

DOI: 10.1021/acs.chemmater.5b02488

43. Hexaqua Metal Complexes for Low-Temperature Formation of Fully Metal Oxide Thin-Film Transistors

You Seung Rim, Huajun Chen, Tze-Bin Song, Sang-Hoon Bae, and Yang Yang

Chemistry of Materials 2015 27 (16), 5808-5812

DOI: 10.1021/acs.chemmater.5b02505

44. Layered V₂O₅/PEDOT Nanowires and Ultrathin Nanobelts Fabricated with a Silk Reelinglike Process

Chun Xian Guo, Kuan Sun, Jianyong Ouyang, and Xianmao Lu

Chemistry of Materials 2015 27 (16), 5813-5819

DOI: 10.1021/acs.chemmater.5b02512

45. Layer-by-Layer Self-Assembly of Polymer Films and Capsules through Coiled-Coil Peptides

Adam J. Gormley, Rona Chandrawati, Andrew J. Christofferson, Colleen Loynachan, Coline

Jumeaux, Arbel Artzy-Schnirman, Daniel Aili, Irene Yarovsky, and Molly M. Stevens

Chemistry of Materials 2015 27 (16), 5820-5824

DOI: 10.1021/acs.chemmater.5b02514

46. Surface-Confined Amorphous Films from Metal-Coordinated Simple Phenolic Ligands

Md. Arifur Rahim, Kristian Kempe, Markus Müllner, Hirotaka Ejima, Yi Ju, Martin P. van Koeverden,

Tomoya Suma, Julia A. Braunger, Michael G. Leeming, Brendan F. Abrahams, and Frank Caruso

Chemistry of Materials 2015 27 (16), 5825-5832

DOI: 10.1021/acs.chemmater.5b02790

47. Uniform Bimetallic Nanocrystals by High-Temperature Seed-Mediated Colloidal Synthesis and Their Catalytic Properties for Semiconducting Nanowire Growth

Matteo Cargnello, Rahul Agarwal, Dahlia R. Klein, Benjamin T. Diroll, Ritesh Agarwal, and

Christopher B. Murray

Chemistry of Materials 2015 27 (16), 5833-5838

DOI: 10.1021/acs.chemmater.5b02900