

## Publications - 2015

1. Sanjaysinh Makwana, Ruplal Choudhary, John Haddock, Punit Kohli “*In-vitro Antibacterial Activity of Plant Based Phenolic Compounds for Food Safety and Preservation*” *LWT - Food Science and Technology* **2015**, 62, 935-939.
2. Navneet Dogra, Ruplal Choudhary, Punit Kohli, John D. Haddock, Sanjaysinh Makwana, Batia Horev, Yakov Vinokur, Samir Droby, and Victor Rodov “*Polydiacetylene Nanovesicles as Carriers of Natural Phenylpropanoids for Creating Antimicrobial Food-contact Surfaces*” *Journal of Agricultural and Food Chemistry*, **2015**, 63, 2557-2565 (dx.doi.org/10.1021/jf505442w). **Highlighted in Chemical and Engineering News:** “*Turmeric Compound Spices Up An Antimicrobial Surface*”, March 12, 2015. Please see <http://cen.acs.org/articles/93/web/2015/03/Turmeric-Compound-Spices-Antimicrobial-Surface.html> for more information.
3. Jiao, Kexin; Kohli, P.; Martin, C.R. “*Transporting and Separating Molecules Using Nanotube and Nanotube Membranes*” Handbook of Membrane Separations, Eds. Anil K. Pabby, Syed S.H. Rizvi, Ana Maria Sastre, **2015** (*in press*).
4. Makwana S., **Choudhary R.**, Kohli P. **2015**. Advances in Antimicrobial Food Packaging with Nanotechnology and Natural Antimicrobials. **International Journal of Food Science and Nutrition Engineering** 5 (4): 169-175.
5. Pradeep Ramiah Rajasekaran, Payam Sharifi, Justin Wolff, Punit Kohli “*Fabrication and characterization of non-linear parabolic microporous membranes*” *Journal of Membrane Science* **2015**, 473, 28-35.
6. “NMR Hyperpolarization Techniques for Biomedicine.” P. Nikolaou, B.M. Goodson, and E.Y. Chekmenev, invited ‘concepts’ review for *Chem. Eur. J.* (peer reviewed); published online December 3, 2014; **21**, 3156-3166 (**2015**).
7. “Microtesla SABRE Enables 10% Nitrogen-15 Nuclear Spin Polarization.” Thomas Theis, Milton Truong, Aaron M. Coffey, Kevin Waddell, Fan Shi, Boyd Goodson, Warren S. Warren, and Eduard Y. Chekmenev, *J. Am. Chem. Soc.*, DOI: 10.1021/ja512242d; published online Jan. 15, 2015; **137**, 1404–1407 (**2015**).
8. “Nanoscale Catalysts for NMR Signal Enhancement by Reversible Exchange.” Fan Shi, Aaron M. Coffey, Kevin W. Waddell, Eduard Y. Chekmenev, and Boyd M. Goodson. *J. Phys. Chem. C*, DOI: 10.1021/acs.jpcc.5b02036, published online March 11, 2015; **119**, 7525-7533 (**2015**).
9. “15N Hyperpolarization By Reversible Exchange Using SABRE-SHEATH.” Milton L. Truong, Thomas Theis, Aaron M. Coffey, Roman V. Shchepin, Kevin W. Waddell, Fan Shi, Boyd M. Goodson, Warren S. Warren, Eduard Y. Chekmenev, *J. Phys. Chem. C.*, DOI: acs.jpcc.5b01799, published online March 30, 2015; **119**, 8786–8797 (**2015**).
10. “Spin-Exchange Optical Pumping at High Xenon Densities and Laser Fluxes: Principles and Practice.” B.M. Goodson, N. Whiting, H. Newton, J.G. Skinner, K. Ranta, P. Nikolaou, M.J. Barlow, and E.Y. Chekmenev, invited chapter for: *Hyperpolarized Xenon-129 Magnetic Resonance* (peer-reviewed); T. Meersmann and E. Brunner, Eds., pp. 96-121 *New Developments in NMR No. 4*, RSC Publishing (**2015**).
11. “NMR Signal Amplification by Reversible Exchange of Neat Liquids.” Roman V. Shchepin, Milton L. Truong, Thomas Theis, Aaron M. Coffey, Kevin W. Waddell, Fan Shi, Warren S. Warren, Boyd M. Goodson, Eduard Y. Chekmenev, *J. Phys. Chem. Lett.*, **6**, 1961–1967 (**2015**).

12. "Hyperpolarization Methods for MRS." Boyd M. Goodson, Nicholas Whiting, Aaron M. Coffey, Panayiotis Nikolaou, Fan Shi, Brogan M. Gust, Max E. Gemeinhardt, Roman V. Shchepin, Jason G. Skinner, Jonathan R. Birchall, Michael J. Barlow, Eduard Y. Chekmenev, invited (peer-reviewed) chapter published in *eMagRes* (formerly *Encyclopedia of Nuclear Magnetic Resonance*); Vol 4: Vol 4: 797-810. DOI 10.1002/9780470034590.emrstm1457 (2015).
13. Sun, K.; Fan, Z.; Rui, N.; Ye J.; Ge Q. & Liu, C.-j. Hydrogenation of CO<sub>2</sub> to methanol over In<sub>2</sub>O<sub>3</sub> Catalyst, *J CO<sub>2</sub> Utilization*, 12, 1-6 (2015).
14. Zhu, K.; Xia, Y.; Tang, M.; Wang, Z.-T.; Lyubinetsky, I.; Ge, Q.; Dohnalek, Z.; Park, K. & Zhang, Z., Low-Temperature Reductive Coupling of Formaldehyde on Rutile TiO<sub>2</sub>(110), *J. Phys. Chem. C*, 119, 18452-18457 (2015).
15. Ye, J.; Ge, Q. & Liu, C.-j. Role of PdIn Bimetallic Particles in CO<sub>2</sub> Reduction on Pd-In<sub>2</sub>O<sub>3</sub>/SiO<sub>2</sub> Catalyst, *Chem. Eng. Sci.* 135, 193-201 (2015).
16. Chen, C.; Chen, G.; Yang, F.; Wang, H.; Han, J.; Ge, Q. & Zhu, X.-L. Vapor phase hydrodeoxygenation and hydrogenation of m-cresol on silica supported Ni, Pd and Pt catalysts, *Chem. Eng. Sci.* 135, 145-154 (2015).
17. Ge, Q. & M. Gutowski, A Comparative Study of Methanol Adsorption and Dissociation over WO<sub>3</sub> (001) and ReO<sub>3</sub> (001), *Top. Catal.* 58, 655-664 (2015).
18. Wang, H.; Lv, J.; Zhu, X.; Liu, X.; Han, J. & Ge, Q. Efficient Hydrolytic Hydrogenation of Cellulose on Mesoporous HZSM-5 Supported Ru Catalysts, *Top. Catal.* 58, 623-632 (2015).
19. Ge, Q. & Hu, P. Preface, *Top. Catal.* 58, 559 (2015).
20. Zhu, K.; Xia, Y.; Tang, M.; Wang, Z.-T.; Jan B.; Lyubinetsky, I.; Ge, Q.; Dohnalek, Z.; Park, K. & Zhang, Z., Tracking Site-Specific C-C Coupling of Formaldehyde Molecules on Rutile TiO<sub>2</sub>(110), *J. Phys. Chem. C*, 119, 14267-14272 (2015).
21. Cui, C.; Wang, H.; Zhu, X.; Han, J.; & Ge, Q. A DFT study of CO<sub>2</sub> electrochemical reduction on Pb(211) and Sn(112), *Science China Chemistry*, 58, 607-613 (2015).
22. Jin, N.; Han, J.; Wang, H.; Zhu, X. & Ge Q. A DFT Study of Oxygen Reduction Reaction Mechanism over O-Doped Graphene-Supported Pt<sub>4</sub>, Pt<sub>3</sub>Fe and Pt<sub>3</sub>V Alloy Catalysts, *Int. J. Hydrogen Energy*, 40, 5126-5134 (2015).
23. Li, G.; Han, J.; Wang, H.; Zhu, X. & Ge, Q. Role of Dissociation of Phenol in Its Selective Hydrogenation on Pt(111) and Pd(111), *ACS Catal.* 5, 2009-16 (2015).
24. Zhang, Z.; Tang, M.; Wang, Z.-T.; Xia, Y.; Park, K. T.; Lyubinetsky, I.; Dohnalek, Z. & Ge, Q. Imaging of Formaldehyde Adsorption and Diffusion on TiO<sub>2</sub>(110), *Top. Catal.* 58, 103-113 (2015).
25. Wu Y, Zhu J, Huang X, Du Z. Expression, purification and crystallization of the HR1 domain of human Caprin1. *Acta crystallographica. Section F: Structural Biology and Crystallization Communications*. 71(3):324-329 (2015).
26. B.D. Falola, R. Radhakrishnan and **I.I. Suni**, "Impedance Biosensor Utilizing a Si Substrate Deposited by Wet Methods," *ECS Electrochem. Lett.* **4**, B4 (2015). DOI: 10.1149/2.0081507eel
27. B.D. Falola and **I.I. Suni**, "Low Temperature Electrochemical Deposition of Highly Active Elements," *Curr. Opin. Solid State Mater. Sci.* **19**, 77 (2015). **INVITED REVIEW ARTICLE**. DOI: <http://dx.doi.org/10.1016/j.cossms.2014.11.006>
28. Y. Al-Issa, J. Njagi, S.C. Schuckers and **I.I. Suni**, "Amperometric Bioelectronic Tongue for Glucose Determination," *Sens. Biosens. Res.* **3**, 31 (2015). DOI: 10.1016/j.sbsr.2014.10.015

29. J.J.M. Jebaraj, D.J. Morrison and **I. I. Suni**, “Hydrogen diffusion in Alloys 686 (UNS N06686) and 59 (UNS N06059),” *Corrosion* **71**, 376 (2015). DOI: 10.5006/1410
30. Sambasiva R. Bheemireddy, Pamela C. Ubaldo, Peter W. Rose, Aaron D. Finke, Junpeng Zhuang, Lichang Wang, and Kyle N. Plunkett, *Angew. Chem. Int. Ed.* **54**(2015)15762-15766: “Stabilizing Pentacene By Cyclopentannulation”.
31. Xiaoyun Fan, Kangrong Lai, Lichang Wang, hengshan Qiu, Jiao Yin, Pengjun Zhao, Shilie Pan, Jinbao Xu, and Chuanyi Wang, *J. Mater. Chem. A* **3**(2015)12179-12187: “Efficient photocatalytic dechlorination of chlorophenols over a nonlinear optical material Na<sub>3</sub>VO<sub>2</sub>B<sub>6</sub>O<sub>11</sub> under UV-visible light irradiation”.
32. Tianyang Wang, Krishanthi C. Weerasinghe, Pamela C. Ubaldo, Dongzhi Liu, Wei Li, Xueqin Zhou, Lichang Wang, *Chem. Phys. Lett.* **618**(2015)142-146: “Tuning electron-hole distance of the excitons in organic molecules using functional groups”.
33. Hu, J., Liu, J., Gagnon, K.T., and Corey, D.R. (2015) Engineering Duplex RNAs for Challenging Targets: Recognition of GGGGCC/CCCCGG repeats at the ALS/FTD *C9ORF72* locus. *Chem. Biol.*, **22**:1505-1511.
34. **Deria, P.**;† Gómez-Gualdrón,† D. A.; Bury, W.; Schaef, H. T.; Wang, T. C.; Thallapally, P. K.; Snurr R. Q.; Hupp, J. T.; Farha, O. K. Ultraporous, Water Stable, and Breathing Zirconium-based Metal-Organic Frameworks with ftw Topology. *J. Am. Chem. Soc.* **2015**, *137*, **13183-13190**.
35. Hod, I.; Sampson, M. D.; **Deria, P.**; Kubiak, C. P.; Farha, O. K.; Hupp, J. T. Fe-Porphyrin Based MOF Films as High-Areal-Concentration, Heterogeneous Catalysts for Electrochemical Reduction of CO<sub>2</sub>. *ACS Catalysis*. **2015**, *5*, 6302-6309. (
36. Lalonde, M. A.; Mondloch, J. E.; **Deria, P.**; Sarjeant, A. A.; Al-Juaid, S. S.; Abdelkarim, O. I.; Farha, O. K.; Hupp, J. T. Selective Solvent-Assisted Linker Exchange (SALE) In a Series of Zeolitic Imidazolate Frameworks. *Inorg. Chem.* **2015**, *54*, 7142-7144.
37. McGonigal, P. R.; **Deria, P.**; Hod, I.; Moghadam, P.; Avestro, A.-J.; Horwitz, N.; Gibbs-Hall, I. C.; Blackburn, A. K.; Chen, D.; Botros, Y. Y.; Wasielewski, M. R.; Snurr, R. Q.; Hupp, J. T.; Farha, O. K.; Stoddart, J. F. Electrochemically-Addressable Trisradical Rotaxanes Organized within a Metal-Organic Framework. *Proc. Natl. Acad. Sci. USA*, **2015**, *112*, 11161-11168.
38. Hod, I.; **Deria, P.**; Bury, W.; Mondloch, J. E.; Kung, C.-W.; So, M.; Farha, O. K.; Hupp, J. T. A Porous, Proton Relaying, Metal-Organic Framework Material that Accelerates Electrochemical Hydrogen Evolution. *Nat. Commun.* **2015**, *6*, 8304 (DOI: 10.1038/ncomms9304).
39. **Deria, P.**; Gregory, Y.; Snurr, R. Q.; Farha, O. K.; Hupp, J. T. Water Stabilization of Zr<sub>6</sub>-Based MOFs via Solvent-Assisted Ligand Incorporation. *Chem. Sci.* **2015**, *6*, 5172-5176.
40. **Deria, P.**;† Li, S.;† Snurr, R. Q.; Farha, O. K.; Hupp, J. T. A MOF Platform for Incorporation of Complementary Organic Motifs for CO<sub>2</sub> Binding. *Chem. Commun.* **2015**, *51*, 12478-12481. († equal contribution)
41. Li, P.; Klet, R. C.; Moon, S.-Y. Wang, T. C.; **Deria, P.**; Peters, A. W.; Klahr, B. M.; Park, H.-J.; Al-Juaid, S. S.; Hupp, J. T.; Farha, O. K. Synthesis of Nanocrystals of Zr-Based Metal-Organic Frameworks with csq-Net: Significant Enhancement in the Degradation of a Nerve Agent Simulant. *Chem. Commun.* **2015**, *51*, 10925-10928.
42. Hongda Zhang, H.; **Deria, P.**; Farha, O. K.; Hupp, J. T.; Snurr, R. Q. A Thermodynamic Tank Model for Studying the Effect of Higher Hydrocarbons on Natural Gas Storage in Metal-Organic Frameworks. *Energy Environ. Sci.* **2015**, *8*, 1501-1510.

43. Olivier, J.-H.; Park, J.; **Deria, P.**; Rawson, J.; Bai, Y.; Therien, M. J. Unambiguous Diagnosis of Photoinduced Charged Carrier Signatures in a Stoichiometrically Controlled Semiconducting Polymer-Wrapped Carbon Nanotube Assembly. *Angew. Chem. Int. Ed.* **2015**, *127*, 8251-8256.
44. Wang, T. C.; Bury, W.; Gomez-Gualdrón, D. A.; Vermeulen, N. A.; Mondloch, J. E.; **Deria, P.**; Zhang, K.; Moghadam, P.; Sarjeant, A. A. Snurr, R. Q.; Stoddart, J. F.; Hupp, J. T.; Farha, O. K. Ultrahigh Surface Area Zirconium MOFs and Insight into the Applicability of BET Theory. *J. Am. Chem. Soc.* **2015**, *137*, 3585-3591.
45. **Deria, P.**; Bury, W.; Hod, I.; Kung, C.-W.; Karagiari, O.; Hupp, J. T.; Farha, O. K. MOF Functionalization via Solvent-Assisted Ligand Incorporation: Phosphonates vs. Carboxylates. *Inorg. Chem.* **2015**, *54*, 2185-2192.
46. Hod, I.; Bury, W.; Gardner, D. M.; Deria, P.; Roznyatovskiy, V.; Wasielewski, M. R.; Farha, O. K.; Hupp, J. T. Bias-Switchable Permselectivity and Redox Catalytic Activity of a Ferrocene-Functionalized, Thin-Film Metal–Organic Framework Compound. *J. Phys. Chem. Lett.* **2015**, *6*, 586-591. (Selected as ACS Editor's Choice.)
47. Rackus, D. G., Shamsi, M. H., Wheeler, A. R. (2015). Electrochemistry, biosensors and microfluidics: a convergence of fields. *Chem. Soc. Rev.*, *44*, 5320–5340.
48. She, Z., Topping, K., Shamsi, M. H., Wang, N., Chan, N. W., Kraatz, H.-B. (2015). Investigation of the utility of complementary electrochemical detection techniques to examine the in vitro affinity of bacterial flagellins for a toll-like receptor 5 biosensor. *Analytical chemistry*, *87*(8), 4218–4224.
49. Bheemireddy, S.R., Ubaldo, P.C., Rose, P.W., Finke, A.D., Zhuang, J., Wang, L., Plunkett, K.N., "Stabilizing Pentacene via Cyclopentannulation", *Angew. Chem. Int. Ed.*, **2015**, *54*, 15762-15766.
50. Zhu, X., Yuan, B., Plunkett, K.N., "Tunable Electron Acceptors Based on Cyclopenta[hi]aceanthrylenes", *Tetrahedron Lett.* **2015**, *56*, 7105-7107
51. Zhang, T.O; Grechko, M.; **Moran, S.D.**; Zanni, M.T. "Isotope labeled amyloids via synthesis, expression, and chemical ligation for use in FTIR, 2D IR and NMR studies." *Methods in Molecular Biology*, **2015**, *1345*, 21-41.
52. "Cycloalkyl-AminoMethyl Rhodamines: pH Dependent Photophysical Properties Tuned by Cycloalkane Ring Size", Chuangjun Liu, Quinn Best, Brian Suarez, Jack Pertile, Matthew E. McCarroll and Colleen N. Scott, *J. Fluor.* **2015**, *25*(2), 231-237.