FY 2014 Journal Publications

Zettl Peer-reviewed Publications for sp^2-bonded Materials Program
FY 2014

Primary Publications (intellectually led by this FWP):

"High-Yield Synthesis of Boron Nitride Nanoribbons via Longitudinal Splitting of Boron Nitride Nanotubes by Potassium Vapor", Alexander Sinitskii, Kristopher J Erickson, Wei Lu, Ashley L Gibb, Chunyi Zhi, Yoshio Bando, Dmitri Golberg, Alex Zettl, and James M Tour, *ACS Nano* Online, **2014.** DOI: 10.1021/nn504809n.

"*Strong Ytterbium driven enhancement of electron-phonon coupling in grapheme",* C. Hwang, D. Young Kim, D. A. Siegel, K. T. Chan, J. Noffsinger, A. V. Fedorov, M. L. Cohen, B. Johansson, J. B. Neaton, A. Lanzara, *Physical Review B* vol. 90, p. 115417, **2014.** DOI: 10.1103/PhysRevB.90.115417.

"Graphene Nanopore with a Self-Integrated Optical Antenna", SungWoo Nam, Inhee Choi, Chi-Cheng Fu, Kwanpyo Kim, SoonGweon Hong, Yeonho Choi, Alex Zettl, and Luke P Lee. *Nano Lett.* Article ASAP, **2014.** DOI: 10.1021/nl503159d.

"Giant bandgap renormalization and excitonic effects in a monolayer transition metal dichalcogenide semiconductor", M. M. Ugeda, A. J. Bradley, S.-F. Shi, F. H. da Jornada, Y. Zhang, D. Y. Qiu,W. Ruan, S.-K. Mo, Z. Hussain, Z.-X. Shen, F. Wang, S. G. Louie and M. F. Crommie, *Nature Materials* Online, **2014.** DOI:10.1038/nmat4061.

"Probing Local Strain at MX_2-Metal Boundaries with Surface Plasmon-Enhanced Raman Scattering", Yinghui Sun, Kai Liu, Xiaoping Hong, Michelle Chen, Jonghwan Kim, Sufei Shi, Junqiao Wu, Alex Zettl, and Feng Wang, *Nano Lett*. vol. 14(9), p. 5329-5334, **2014.** DOI: 10.1021/nl5023767.

"Performance Enhancement of a Graphene-Zinc Phosphide Solar Cell Using the Electric Field-Effect", O. Vazquez-Mena, J.P. Bosco, O. Ergen, H.I. Rasool, A. Fathalizadeh, M. Tosun, M. Crommie, A. Javey, H.A. Atwater, and A. Zettl, *Nano Lett.,* vol. 14(8), p. 4280-4285, **2014.** DOI:10.1021/nl500925n.

"Colloquium: Graphene Spectroscopy", D. N. Basov, M. Fogler, A. Lanzara, M.C. Martin, F.Wang, Y. B. Zhang, *Review Modern Physics*, vol. 86, p. 959, **2013.** DOI: 10.1103/RevModPhys.86.959.

Acknowledgement: D. B., M. F., and F. W. acknowledge support from ONR under Grant No. N0014-13-0464. The work at UCSD is also supported by DOE-BES under Contract No. DE-FG02-00ER45799, by AFOSR Grant No. FA9550-09-1-0566, by NSF Grant

No. DMR-1337356, by ARO Grant No. W911NF-13-1-0210, and also by UCOP and FENA. Additionally, F. W. is supported by DOE-BES under Contracts No. DE-SC0003949 and No. DE-AC02-05CH11231. A. L. acknowledges support from the Novel *Sp2*-bonded Materials Program at Lawrence Berkeley National Laboratory, funded by the DOE Office of Basic Energy Sciences, Materials Sciences and Engineering Division under Contract No. DE-AC02-05CH11231. Y. Z is supported by NSF of China through Grant No. 11034001 and MOST of China through Grant No. 2011CB921802.

"Quasiparticle and Optical Properties of Polythiophene-derived Polymers", G. Samsonidze, F.J. Ribeiro, M.L. Cohen, and S.G. Louie, *Phys. Rev. B* vol. 90, p. 035123, **2014.** DOI: 10.1103/PhysRevB.90.035123.

"Scaled Synthesis of Boron Nitride Nanotubes, Nanoribbons, and Nanococoons Using Direct Feedstock Injection into an Extended-Pressure, Inductively-Coupled Thermal Plasma", A. Fathalizadeh, T. Pham, W. Mickelson, and A. Zettl, *Nano Lett.*, vol. 14(8), p. 4881-4886, **2014.** DOI: 10.1021/nl5022915.

"Imaging and Tuning Molecular Levels at the Surface of a Gated Graphene Device," A. Riss, S. Wickenburg, L. Z. Tan, H.-Z. Tsai, Y. Kim, J. Lu, A. J. Bradley, M. Moreno Ugeda, K. Meaker, K. Watanabe, T. Taniguchi, A. Zettl, F. R. Fischer, S. G. Louie, and M. F. Crommie, *ACS Nano* vol. 8(6), p. 5395-5401, **2014.** DOI: 10.1021/nn501459v.

"Photoinduced doping in heterostructures of graphene and boron nitride", L. Ju, J. Velasco Jr, E. Huang, S. Kahn, C. Nosiglia, Hsin-Zon Tsai, W. Yang, T. Taniguchi, K. Watanabe, Y. Zhang, G. Zhang, M. Crommie, A. Zettl & F. Wang, *Nature Nanotech.* vol. 9, p. 348–352, **2014.** DOI:10.1038/nnano.2014.60.

"Controlled growth of a line defect in graphene and implications for gate-tunable valley filtering", J-H. Chen, G. Autès, N. Alem, F. Gargiulo, A. Gautam, M. Linck, C. Kisielowski, O. V. Yazyev, S. G. Louie and A. Zettl, *Phys. Rev. B.* vol. 89, p. 121407 1-5, **2014.** DOI: 10.1103/PhysRevB.89.121407.

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"Subnanometer vacancy defects introduced on graphene by oxygen gas", Yasuhiro Yamada, Kazumasa Murota, Ryo Fujita, Jungpil Kim, Ayuko Watanabe, Masashi Nakamura, Satoshi Sato, Kenji Hata, Peter Ercius, Jim Ciston, Cheng Yu Song, Kwanpyo Kim, William Regan, Will Gannett, and Alex Zettl. *J Am Chem Soc* vol. 136(6), p. 2232-2235, **2014.** DOI: 10.1021/ja4117268.

Acknowledgement: Acknowledgments are made to the Kagoshima University in Japan for XPS measurements. Graphite was supplied from Nippon Graphite Industries, Ltd. This work was supported by the Japan Society for the Promotion of Science (JSPS) KAKENHI Grant 22760594, the JSPS Institutional Program for Young Researcher Overseas Visits, the Murata Science Foundation for an overseas visit, and the Yazaki Memorial Foundation for Science and Technology for an overseas visit. A portion of this work was performed at NCEM, which is supported by the U.S. Department of Energy, Office of Science, Office of Basic Energy Sciences under Contract DE-AC02-05CH11231.

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