Publication list for AC-(S)TEM for 20-80 kV

[1] Alem, N., Yazyev, O. V, Kisielowski, C., Denes, P., Dahmen, U., Hartel, P., *et al.* (2011). Probing the out-of-plane distortion of single point defects in atomically thin hexagonal boron nitride at the picometer scale. *Physical Review Letters*, *106*(12), 126102. Retrieved from http://link.aps.org/doi/10.1103/PhysRevLett.106.126102

[2] Bangert, U, Bleloch, A., Gass, M., Seepujak, A., & Berg, J. Van Den. (2010). Doping of few-layered graphene and carbon nanotubes using ion implantation. *Physical Review B*, *81*(24), 1–11. doi:10.1103/PhysRevB.81.245423

[3] Bangert, Ursel, Gass, M. H., Zan, R., & Pan, C. T. (2011). Scanning Transmission Electron Microscopy and Spectroscopy of Suspended Graphene. In S. Mikhailov (Ed.), *Physics and Applications of Graphene - Experiments*. Retrieved from http://www.intechopen.com/books/physics-and-applications-of-graphene-experiments

[4] Bar Sadan, M., Houben, L., Enyashin, A. N., Seifert, G., & Tenne, R. (2008). Atom by atom: HRTEM insights into inorganic nanotubes and fullerene-like structures. *Proceedings of the National Academy of Sciences of the United States of America*, *105*(41), 15643–15648. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2572970&tool=pmcentrez&rendertype=abstract

[5] Bar Sadan, M., Houben, L., Wolf, S. G., Enyashin, A., Seifert, G., Tenne, R., & Urban, K. (2008). Toward atomic-scale bright-field electron tomography for the study of fullerene-like nanostructures. *Nano Letters*, 8(3), 891–6. doi:10.1021/nl073149i

[6] Barton, B., Song, C., & Kisielowski, C. (2011). Atomic Resolution at 50-300 kV Obtained using Low Dose Rate HRTEM. *Microscopy and Microanalysis*, *17*, 1266–1267. doi:10.1017/S1431927611007203

[7] Bell, D. C., Russo, C. J., & Kolmykov, D. (2011). 40 keV atomic resolution TEM. *Ultramicroscopy*, 114, 31-37.

[8] Bell, D. C. (2011). Advanced Monochromated Low-Voltage EELS and EFTEM. *Microscopy and Microanalysis*, *17*, 824–825.

[9] Bell, D. C. (2011). A Beginners Guide to: Aberration Corrected Electron Microscopy. *Microscopy and Microanalysis*, *17*, 1944–1945. doi:10.1017/S1431927611010592

[10] Bell, D. C., Thomas, W., Murtagh, K., & Glover, W. (2011). Albert Crewe's Dream Realized: Sequencing DNA with STEM. *Microscopy and Microanalysis*, *17*, 1276–1277. doi:10.1017/S1431927611007252

[11] Bell, D., Kolmykov, D., & Russo, C. (2011). Low-Voltage (40 kV) Aberration-Corrected, Monochromated, Imaging for Carbon Nanostructures. *Microscopy and Microanalysis*, *17*, 1490–1491. doi:10.1017/S1431927611008324

[12] Bell, D. C., Russo, C. J., & Benner, G. (2010). Sub-angstrom low-voltage performance of a monochromated, aberration-corrected transmission electron microscope. *Microscopy and Microanalysis*, *16*, 386–392. doi:10.1017/S1431927610093670

[13] Börrnert, F., Bachmatiuk, A., Büchner, B., & Rümmeli, M. H. (2010). Low-Voltage Aberration-Corrected Transmission Electron Microscopy: Progressing Carbon Nanostructures. *Microscopy: Science, Technology, Applications and Education*, 1846–1852.

[14] Börrnert, F., Börrnert, C., Gorantla, S., Liu, X., Bachmatiuk, A., Joswig, J.-O., *et al.* (2010). Single-wall-carbon-nanotube/single-carbon-chain molecular junctions. *Physical Review B*, *81*(8), 1–5. doi:10.1103/PhysRevB.81.085439

[15] Börrnert, F., Gorantla, S., Bachmatiuk, A., Warner, J. H., Ibrahim, I., Thomas, J., *et al.* (2010). In situ observations of self-repairing single-walled carbon nanotubes. *Physical Review B*, *81*(20), 1–4. doi:10.1103/PhysRevB.81.201401

[16] Botton, G. A., Lazar, S., & Dwyer, C. (2010). Elemental mapping at the atomic scale using low accelerating voltages. *Ultramicroscopy*, *110*(8), 926–934. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S0304399110000860

[17]Chamberlain, T. W., Meyer, J. C., Biskupek, J., Leschner, J., Santana, A., Besley, N. A., *et al.* (2011). Reactions of the inner surface of carbon nanotubes and nanoprotrusion processes imaged at the atomic scale. *Nature Chemistry*, *3*, 732–737. doi:10.1038/NCHEM.1115

[18] Chang, L.-Y., Osawa, E., & Barnard, A. S (2010). Confirmation of the electrostatic self-assembly of nanodiamonds. *Nanoscale*, 3(3), 958-962.

[19] Chang, L., Maunders, C., Baranova, E., Bock, C., and Botton, G. (2008). Quantitative Characterisation of Surfaces and Defects on PtRu Nanoparticles Using Combined Exit Wave Restoration and Aberration-Corrected TEM. *Microscopy and Microanalysis*, 14(2), 426-427.

[20] Chuvilin, A, Bichoutskaia, E., Chamberlain, T. W., Rance, G. A., Kuganathan, N., Biskupek, J., *et al.* (2011). Self-assembly of a sulphur-terminated graphene nanoribbon within a single-walled carbon nanotube. *Nature Materials*, *10*, 687–692. doi:10.1038/NMAT3082

[21] Chuvilin, A, Meyer, J. C., Algara-Siller, G., & Kaiser, U. (2009). From Graphene constrictions to single carbon chains. *New Journal of Physics*, *11*(8), 12. doi:10.1088/1367-2630/11/8/083019

[22] Chuvilin, Andrey, Kaiser, U., Bichoutskaia, E., Besley, N. A., & Khlobystov, A. N. (2010). Direct transformation of graphene to fullerene. *Nature chemistry*, *2*(6), 450–453. Retrieved from http://www.nature.com/doifinder/10.1038/nchem.644

[23] Chuvilin, Andrey, Khlobystov, A. N., Obergfell, D., Haluska, M., Yang, S., Roth, S., & Kaiser, U. (2010). Observations of chemical reactions at the atomic scale: dynamics of metal-mediated fullerene coalescence and nanotube rupture. *Angewandte Chemie (International ed. in English)*, *49*(1), 193–6. doi:10.1002/anie.200902243

[24] Dahmen, U., Erni, R., Radmilovic, V., Ksielowski, C., Rossell, M.-D., & Denes, P. (2009). Background, status and future of the Transmission Electron Aberration-corrected Microscope project. *Philosophical Transactions A*, *367*(1903), 3795–808. doi:10.1098/rsta.2009.0094

[25]Dato, A., Lee, Z., Jeon, K.-J., Erni, R., Radmilovic, V., Richardson, T. J., & Frenklach, M. (2009). Clean and highly ordered graphene synthesized in the gas phase. *Chemical Communications*, (40), 6095–6097. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19809655

[26] Dellby, N., Bacon, N. J., Hrncirik, P., Murfitt, M. F., Skone, G. S., Szilagyi, Z. S., & Krivanek, O. L. (2011). Dedicated STEM for 200 to 40 keV operation. *The European Physical Journal Applied Physics*, *54*(3), 33505. doi:10.1051/epjap/2011100429

[27] Dong, L. (2009). DNA-templated synthesis of Pt nanoparticles on single-walled carbon nanotubes. *Nanotechnology*, *20*(46), 465602. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19843998

[28] Erni, R., Rossell, M. D., Nguyen, M.-T., Blankenburg, S., Passerone, D., Hartel, P., *et al.* (2010). Stability and dynamics of small molecules trapped on graphene. *Physical Review B*, *82*(16), 165443. doi:10.1103/PhysRevB.82.165443

[29] Freitag, B., Jinschek, J. R., & Steinbach, A. (2009). Benchmarks for a New Era in Quantitative S/TEM: Resolution, Sensitivity and Precision. *Microscopy and Analysis, Supplement*, *8*, 55–58. Retrieved from http://3debooks.annikassociates.co.uk/?userpath=00000016/00005506/00050069/&page=5

[30] Gao, J., Blondeau, P., Salice, P., Menna, E., Bártová, B., Hébert, C., *et al.* (2011). Electronic interactions between "pea" and "pod": the case of oligothiophenes encapsulated in carbon nanotubes. *Small (Weinheim an der Bergstrasse, Germany)*, *7*(13), 1807–15. doi:10.1002/smll.201100319

[31] Gass, M. H. (2009). Aberration corrected STEM-EELS: reducing the accelerating voltage for carbon nanostructures. *EDGE 2009*, 141. Retrieved from http://www.energyloss.com/Abstracts/EDGE/EDGE 2009 22 May Morning Abstracts.pdf

[32] Gimenez-Lopez, M. D. C., Chuvilin, A., Kaiser, U., & Khlobystov, A. N. (2011). Functionalised endohedral fullerenes in single-walled carbon nanotubes. *Chemical Communications*, *47*(7), 2116–8. doi:10.1039/c0cc02929g

[33] Girit, C. O., Meyer, J. C., Erni, R., Rossell, M. D., Kisielowski, C., Yang, L., *et al.* (2009). Graphene at the edge: stability and dynamics. *Science*, *323*(5922), 1705–8. doi:10.1126/science.1166999

[34] Gómez-Navarro, C., Meyer, J. C., Sundaram, R. S., Chuvilin, A., Kurasch, S., Burghard, M., *et al.* (2010). Atomic structure of reduced graphene oxide. *Nano Letters*, *10*(4), 1144–1148. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20199057

[35] Gorantla, S., Avdoshenko, S., Borrnert, F., Bachmatiuk, A., Dimitrakopoulou, M., Schaffel, F., *et al.* (2010). Enhanced π–π Interactions Between a C60 Fullerene and a Buckle Bend on a Double-Walled Carbon Nanotube. *Nano Research*, *3*(2), 92–97. Retrieved from http://www.citeulike.org/article/6783208

[36] Gorantla, S., Borrnert, F., Bachmatiuk, A., Dimitrakopoulou, M., Schonfelder, R., Schaffel, F., *et al.* (2010). In situ observations of fullerene fusion and ejection in carbon nanotubes. *Nanoscale*, *2*(10), 2077–2079. Retrieved from http://www.nanoarchive.org/9625/

[37] Gorantla, S., Börrnert, F., Bachmatiuk, A., Schönfelder, R., Rümmeli, M. H., Büchner, B., *et al.* (2009). HRTEM imaging of electron beam irradiation defect dynamics in SWCNTs at 80 kV. In *MC2009* (pp. 141–142). doi:10.3217/978-3-85125-062-6-443

[38] Haider, M., Hartel, P., Müller, H., Uhlemann, S., & Zach, J. (2010). Information transfer in a TEM corrected for spherical and chromatic aberration. *Microscopy and Microanalysis*, *16*, 393–408.

[39] Huang, P. Y., Ruiz-Vargas, C. S., Van Der Zande, A. M., Whitney, W. S., Levendorf, M. P., Kevek, J. W., *et al.* (2011). Grains and grain boundaries in single-layer graphene atomic patchwork quilts. *Nature*, *469*(7330), 389–392. Retrieved from http://www.nature.com/doifinder/10.1038/nature09718

[40] Jeon, K.-J., Moon, H. R., Ruminski, A. M., Jiang, B., Kisielowski, C., Bardhan, R., & Urban, J. J. (2011). Air-stable magnesium nanocomposites provide rapid and high-capacity hydrogen storage without using heavy-metal catalysts. *Nature Materials*. Nature Publishing Group. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21399630

[41] Jinschek, J. R., Yucelen, E., Calderon, H. A., & Freitag, B. (2011). Quantitative atomic 3-D imaging of single/double sheet graphene structure. *Carbon*, *49*(2), 556–562. doi:10.1016/j.carbon.2010.09.058

[42] Kaiser, U A, Chuvilin, A., Meyer, J., & Biskupek, J. (2009). Microscopy at the bottom. In *In: W. Grogger, F. Hofer, P. Poelt (Eds.) Materials Science Microscopy Conference MC2009* (Vol. 3, pp. 1–6). doi:10.3217/978-3-85125-062-6-379

[43] Kaiser, U., Biskupek, J., Meyer, J. C., Leschner, J., Lechner, L., Rose, H., *et al.* (2011). Transmission electron microscopy at 20 kV for imaging and spectroscopy. *Ultramicroscopy*, *111*(8), 1239–46. doi:10.1016/j.ultramic.2011.03.012

[44] Kaiser, Ute A, Chuvilin, A., Schröder, R. R., Haider, M., & Rose, H. H. (2008). Sub-Angstrom Low-Voltage Electron Microscopy - future reality for deciphering the structure of beam-sensitive nanoobjects. In *EMC 2008 14th European Microscopy Congress 1-5 September 2008, Aachen, Germany* (pp. 35–36).

[45] Kim, J. S., Borisenko, K. B., Nicolosi, V., & Kirkland, A. I. (2011). Controlled Radiation Damage and Edge Structures in Boron Nitride Membranes. *ACS nano*, *5*(5), 3977–3986. doi:10.1021/nn2005443

[46] Kim, K., Lee, Z., Regan, W., Kisielowski, C., Crommie, M. F., & Zettl, A. (2011). Grain boundary mapping in polycrystalline graphene. *ACS nano*, *5*(3), 2142–6. doi:10.1021/nn1033423

[47] Kisielowski, C. F., Erni, R., & Meyer, J. C. (2008). Electron Beam Induced Damage. An Atom-by-atom Investigation with TEAM 0.5. *Imaging & Microscopy*, *10*, 24–25. doi:10.1002/imic.200890062

[48] Kisielowski, C., Freitag, B., Bischoff, M., van Lin, H., Lazar, S., Knippels, G., *et al.* (2008). Detection of single atoms and buried defects in three dimensions by aberration-corrected electron microscope with 0.5-A information limit. *Microscopy and Microanalysis*, *14*, 469–477. doi:10.1017/S1431927608080902

[49] Kisielowski, C., Specht, P., Alloyeau, D., Erni, R., Ramasse, Q., Secula, E. M., *et al.* (2009). Aberration-corrected Electron Microscopy Imaging for Nanoelectronics Applications. In *AIP Conference Proceedings* (pp. 231–240). AMER INST PHYSICS. doi:10.1063/1.3251226

[50] Koshino, M., Niimi, Y., Nakamura, E., Kataura, H., Okazaki, T., Suenaga, K., & Iijima, S. (2010). Analysis of the reactivity and selectivity of fullerene dimerization

reactions at the atomic level. *Nature chemistry*, *2*(2), 117–124. Retrieved from http://www.nature.com/doifinder/10.1038/nchem.482

[51] Kotakoski, J., Jin, C., Lehtinen, O., Suenaga, K., & Krasheninnikov, A. (2010). Electron knock-on damage in hexagonal boron nitride monolayers. *Physical Review B*, *82*(11), 1–4. doi:10.1103/PhysRevB.82.113404

[52] Kotakoski, J., Meyer, J., Kurasch, S., Santos-Cottin, D., Kaiser, U., & Krasheninnikov, A. (2011). Stone-Wales-type transformations in carbon nanostructures driven by electron irradiation. *Physical Review B*, *83*(24), 245420. doi:10.1103/PhysRevB.83.245420

[53] Kotakoski, J., & Krasheninnikov, A. V (2010). Native and irradiation-induced defects in graphene: What can we learn from atomistic simulations? *Computational Nanoscience*, 42, 1-59.

[54] Krivanek, O. L., Chisholm, M. F., Nicolosi, V., Pennycook, T. J., Corbin, G. J., Dellby, N., *et al.* (2010). Atom-by-atom structural and chemical analysis by annular dark-field electron microscopy. *Nature*, *464*(7288), 571–574. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20336141

[55] Krivanek, O. L., Dellby, N., Murfitt, M. F., Chisholm, M. F., Pennycook, T. J., Suenaga, K., & Nicolosi, V. (2010). Gentle STEM: ADF imaging and EELS at low primary energies. *Ultramicroscopy*, *110*(8), 935–945. Retrieved from http://dx.doi.org/10.1016/j.ultramic.2010.02.007

[56] Kujawa, S., Freitag, B., & Hubert, D. H. W. (2006). An Aberration Corrected (S)TEM Microscope for Nanoresearch. *Microscopy Today*, 6, 4 pages.

[57] Kurasch, S., Meyer, J. C., Künzel, D., Groß, A., & Kaiser, U. (2011). Simulation of bonding effects in HRTEM images of light element materials. *Beilstein journal of nanotechnology*, *2*, 394–404. doi:10.3762/bjnano.2.45

[58] Lee, Z., Jeon, K.-J., Dato, A., Erni, R., Richardson, T. J., Frenklach, M., & Radmilovic, V. (2009). Direct imaging of soft-hard interfaces enabled by graphene. *Nano Letters*, *9*(9), 3365–3369. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19591495

[59] Leschner, J., Biskupek, J., Chuvilin, a., & Kaiser, U. (2010). Accessing the local three-dimensional structure of carbon materials sensitive to an electron beam. *Carbon*, *48*(14), 4042–4048. doi:10.1016/j.carbon.2010.07.009

[60] Lethinen, O. (2011). Irradiation effects in graphene and related materials. *University of Helsinki,* REPORT SERIES IN PHYSICS HU-P-D180.

[61] Lin, Y.-C., Jin, C., Lee, J.-C., Jen, S.-F., Suenaga, K., & Chiu, P.-W. (2011). Clean transfer of graphene for isolation and suspension. *ACS nano*, *5*(3), 2362–2368. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21351739

[62] Liu, Z., Suenaga, K., Wang, Z., Shi, Z., Okunishi, E., & Iijima, S. (2011). Identification of active atomic defects in a monolayered tungsten disulphide nanoribbon. *Nature communications*, *2*, 213. Retrieved from http://www.nature.com/doifinder/10.1038/ncomms1224

[63] Lu, C.-C., Jin, C., Lin, Y.-C., Huang, C.-R., Suenaga, K., & Chiu, P.-W. (2011). Characterization of graphene grown on bulk and thin film nickel. *Langmuir The Acs Journal Of Surfaces And Colloids*, *27*(22), 13748–53. doi:10.1021/la2022038

[64] Mao, Y., Wang, W. L., Wei, D., Kaxiras, E., & Sodroski, J. G. (2011). Graphene structures at an extreme degree of buckling. *ACS nano*, *5*(2), 1395–1400. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3049306&tool=pmcentrez&rendertype=abstract

[65] Meyer, J. C., Chuvilin, A., Algara-Siller, G., Biskupek, J., & Kaiser, U. (2009). Selective sputtering and atomic resolution imaging of atomically thin boron nitride membranes. *Nano letters*, *9*(7), 2683–9. doi:10.1021/nl9011497

[66] Meyer, J. C., Chuvilin, A., & Kaiser, U. (2009). Graphene – Twodimensional carbon at atomic resolution. In *In: W. Grogger, F. Hofer, P. Poelt (Eds.) Materials Science Microscopy Conference MC2009* (Vol. 3, pp. 347–348). doi:10.3217/978-3-85125-062-6-546

[67] Meyer, J. C., Kisielowski, C., Erni, R., Rossell, M. D., Crommie, M. F., & Zettl, A. (2008). Direct imaging of lattice atoms and topological defects in graphene membranes. *Nano Letters*, *8*(11), 3582–3586. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18563938

[68] Meyer, J. C., Kurasch, S., Park, H. J., Skakalova, V., Künzel, D., Groß, A., *et al.* (2011). Experimental analysis of charge redistribution due to chemical bonding by high-resolution transmission electron microscopy. *Nature Materials*, *10*, 209–215. doi:10.1038/NMAT2941

[69] Nam, K. T., Shelby, S. a, Choi, P. H., Marciel, A. B., Chen, R., Tan, L., *et al.* (2010). Free-floating ultrathin two-dimensional crystals from sequence-specific peptoid polymers. *Nature materials*, *9*(5), 454–60. doi:10.1038/nmat2742

[70] Nelson, F., Diebold, A. C., & Hull, R. (2010). Simulation study of aberration-corrected high-resolution transmission electron microscopy imaging of few-layer-graphene stacking. *Microscopy and Microanalysis*, *16*, 194–199. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20100382

[71] Nicholls, R. J., Sader, K., Warner, J. H., Plant, S. R., Porfyrakis, K., Nellist, P. D., *et al.* (2010). Direct imaging and chemical identification of the encapsulated metal atoms in bimetallic endofullerene peapods. *ACS nano*, *4*(7), 3943–3948. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20557070

[72] Ohwada, M., Kimoto, K., Suenaga, K., Sato, Y., Ebina, Y., & Sasaki, T. (2011). Synthesis and Atomic Characterization of a Ti 2 O 3 Nanosheet. *Structure*, *2*(June), 1820–1823. doi:10.1021/jz200781u

[73] Pacilé, D., Meyer, J. C., Fraile Rodríguez, a., Papagno, M., Gómez-Navarro, C., Sundaram, R. S., *et al.* (2011). Electronic properties and atomic structure of graphene oxide membranes. *Carbon*, *49*(3), 966–972. doi:10.1016/j.carbon.2010.09.063

[74] Pantelic, R. S., Meyer, J. C., Kaiser, U., Baumeister, W., & Plitzko, J. M. (2010). Graphene oxide: a substrate for optimizing preparations of frozen-hydrated samples. *Journal of structural biology*, *170*(1), 152–6. doi:10.1016/j.jsb.2009.12.020

[75] Pantelic, R. S., Suk, J. W., Magnuson, C. W., Meyer, J. C., Wachsmuth, P., Kaiser, U., *et al.* (2011). Graphene: Substrate preparation and introduction. *Journal of structural biology*, *174*(1), 234–8. doi:10.1016/j.jsb.2010.10.002

[76] Park, H. J., Meyer, J., Roth, S., & Skákalová, V. (2010). Growth and properties of few-layer graphene prepared by chemical vapor deposition. *Carbon*, *48*(4), 1088–1094. doi:10.1016/j.carbon.2009.11.030

[77] Park, H. J., Skákalová, V., Meyer, J., Lee, D. S., Iwasaki, T., Bumby, C., *et al.* (2010). Growth and properties of chemically modified graphene. *Physica Status Solidi (B)*, *247*(11-12), 2915–2919. doi:10.1002/pssb.201000818

[78] Plachinda, P., Rouvimov, S., Solanki, R., & Langworthy, K. (2011). HRTEM Contrast Analysis for Structure Characterization of Graphene Films Grown by CVD. *Microscopy and Microanalysis*, *17*, 1436–1437. doi:10.1017/S1431927611008051

[79] Pohl, D., Schäffel, F., Rümmeli, M. H., Mohn, E., Täschner, C., Schultz, L., *et al.* (2011). Understanding the Metal-Carbon Interface in FePt Catalyzed Carbon Nanotubes. *Physical Review Letters*, *107*, 185501. Retrieved from http://prl.aps.org/abstract/PRL/v107/i18/e185501

[80] Polking, M. J., Urban, J. J., Milliron, D. J., Zheng, H., Chan, E., Caldwell, M. A., *et al.* (2011). Size-dependent polar ordering in colloidal GeTe nanocrystals. *Nano Letters*, *11*(3), 1147–1152. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21338071

[81] Robertson, A. W., Bachmatiuk, A., Wu, Y. a, Schäffel, F., Büchner, B., Rümmeli, M. H., & Warner, J. H. (2011). Structural distortions in few-layer graphene creases. *ACS nano*, *5*(12), 9984–91. doi:10.1021/nn203763r

[82] Rossell, M., Erni, R., Asta, M., Radmilovic, V., & Dahmen, U. (2009). Atomic-resolution imaging of lithium in Al3Li precipitates. *Physical Review B*, *80*(2), 3–8. doi:10.1103/PhysRevB.80.024110

[83] Rümmeli, M. H., Bachmatiuk, A., Scott, A., Börrnert, F., Warner, J. H., Hoffman, V., *et al.* (2010). Direct low-temperature nanographene CVD synthesis over a dielectric insulator. *ACS nano*, *4*(7), 4206–10. doi:10.1021/nn100971s

[84] Sato, Y., Sasaki, T., Sawada, H., Hosokawa, F., Tomita, T., Kaneyama, T., Kondo, Y., & Suenaga, K. (2011). Innovative electron microscope for light-element atom visualization — Development of low-voltage electron microscopes in Triple-C project — . *Synthesiology* (English edition), 4(3), 172-182.

[85] Sato, Y., Yanagi, K., Miyata, Y., Suenaga, K., Kataura, H., & Iijima, S. (2008). Chiral-angle distribution for separated single-walled carbon nanotubes. *Nano Letters*, *8*(10), 3151–3154. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18729412

[86] Sawada, H., Hosokawa, F., Sasaki, T., Yusa, S., Kawazoe, M., Terao, M., *et al.* (2011). Development of 30-kV Cc/Cs Correction Tandem System. *Microscopy and Microanalysis*, *17*, 1184–1185. doi:10.1017/S1431927611006799

[87] Sawada, H., Sasaki, T., Hosokawa, F., Yuasa, S., Terao, M., Kawazoe, M., *et al.* (2009). Correction of higher order geometrical aberration by triple 3-fold astigmatism field. *Journal of Electron Microscopy*, *58*(6), 341–347.

[88] Schäffel, F., Warner, J. H., Bachmatiuk, A., Rellinghaus, B., Büchner, B., Schultz, L., & Rümmeli, M. H. (2009). Shedding light on the crystallographic etching of multi-layer graphene at the atomic scale. *Nano Research*, *2*(9), 695–705. Retrieved from http://www.springerlink.com/content/a71144j62411727j/

[89] Schaffer, B., Azough, F., Abou-Ras, D., Schmidt, S., Schaffer, M., Sarahan, M., *et al.* (2011). Applications of Atomic-Resolution EELS Mapping at Low kV. *Microscopy and Microanalysis*, *17*, 786–787. Retrieved from 10.1017/S1431927611004806

[90] Shah, A. B., Ramasse, Q. M., Wen, J. G., Bhattacharya, A., & Zuo, J. M. (2011). Practical spatial resolution of electron energy loss spectroscopy in aberration corrected scanning transmission electron microscopy. *Micron Oxford England 1993*, *42*(6), 539–546. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21376607

[91] Shiozawa, H., Kramberger, C., Pfeiffer, R., Kuzmany, H., Pichler, T., Liu, Z., *et al.* (2010). Catalyst and chirality dependent growth of carbon nanotubes determined through nano-test tube chemistry. *Advanced Materials*, *22*(33), 3685–3689. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20535743

[92] Shiozawa, H., Silva, S. R. P., Liu, Z., Suenaga, K., Kataura, H., Kramberger, C., *et al.* (2010). Low-temperature growth of single-wall carbon nanotubes inside nano test tubes. *physica status solidi (b)*, *247*, 2730–2733. doi:10.1002/pssb.201000314

[93] Sloan, J., Liu, Z., Suenaga, K., Wilson, N. R., Pandey, P. A., Perkins, L. M., *et al.* (2010). Imaging the structure, symmetry, and surface-inhibited rotation of

polyoxometalate ions on graphene oxide. *Nano Letters*, *10*(11), 4600–4606. Retrieved from http://dx.doi.org/10.1021/nl1026452

[94] Song, L., Ci, L., Lu, H., Sorokin, P. B., Jin, C., Ni, J., *et al.* (2010). Large scale growth and characterization of atomic hexagonal boron nitride layers. *Nano Letters*, *10*(8), 3209–3215. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20698639

[95] Suenaga, Kazu, & Koshino, M. (2010). Atom-by-atom spectroscopy at graphene edge. *Nature*, *468*(7327), 1088–1090. Retrieved from http://www.nature.com/doifinder/10.1038/nature09664

[96] Suenaga, Kazu, Sato, Y., Liu, Z., Kataura, H., Okazaki, T., Kimoto, K., *et al.* (2009). Visualizing and identifying single atoms using electron energy-loss spectroscopy with low accelerating voltage. *Nature chemistry*, *1*(5), 415–418. Retrieved from http://www.nature.com/doifinder/10.1038/nchem.282

[97] Suenaga, Kazutomo, Iizumi, Y., & Okazaki, T. (2011). Single atom spectroscopy with reduced delocalization effect using a 30 kV-STEM. *The European Physical Journal Applied Physics*, *54*, 33508. doi:10.1051/epjap/2011100414

[98] Takayanagi, K. (2007). Angle Resolved Spectroscopic Observation of Electron Beam induced Radiation from Nano-Structures excited by Low-Energy Electron Nanoprobe. *JSPS project*: yr 2007-2011..

[99] Tenne, R., & Seifert, G. (2009). Recent Progress in the Study of Inorganic Nanotubes and Fullerene-Like Structures. *Annual Review of Materials Research*, *39*(1), 387–413. doi:10.1146/annurev-matsci-082908-145429

[100] Urban, K. W. (2011). The challenges of graphene. *Nature Materials*, *10*(3), 165–166. doi:10.1038/nmat2964

[101] Van Aert, S., Batenburg, K. J., Rossell, M. D., Erni, R., & Van Tendeloo, G. (2011). Three-dimensional atomic imaging of crystalline nanoparticles. *Nature*, *470*(7334), 374–377. Retrieved from http://www.nature.com/doifinder/10.1038/nature09741

[102] Wang, H., Wang, Q., Cheng, Y., Li, K., Yao, Y., Zhang, Q., Dong, C., Wang, P., Schwingenschlögl, U., Yang, W., & Zhang, X. X (2011). Doping monolayer graphene with single atom substitutions. *Nano Letters*, 12(1), 141-144.

[103] Wang, Z., Li, H., Liu, Z., Shi, Z., Lu, J., Suenaga, K., *et al.* (2010). Mixed low-dimensional nanomaterial: 2D ultranarrow MoS2 inorganic nanoribbons encapsulated in quasi-1D carbon nanotubes. *Journal of the American Chemical Society*, *132*(39), 13840–7. doi:10.1021/ja1058026

[104] Warner, J. H. (2010). The influence of the number of graphene layers on the atomic resolution images obtained from aberration-corrected high resolution transmission electron microscopy. *Nanotechnology*, *21*(25), 255707. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20516582

[105] Warner, J. H., Ito, Y., Rümmeli, M. H., Büchner, B., Shinohara, H., & Briggs, G. A. D. (2009). Capturing the motion of molecular nanomaterials encapsulated within carbon nanotubes with ultrahigh temporal resolution. *ACS nano*, *3*(10), 3037–3044. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19743832

[106] Warner, J. H., Plant, S. R., Young, N. P., Porfyrakis, K., Kirkland, A. I., & Briggs, G. A. D. (2011). Atomic Scale Growth Dynamics of Nanocrystals within Carbon Nanotubes. *ACS nano*, *5*(2), 1410–1417. doi:10.1021/nn1031802

[107] Warner, J. H., Rümmeli, M. H., Bachmatiuk, A., & Büchner, B. (2010a). Examining the stability of folded graphene edges against electron beam induced sputtering with atomic resolution. *Nanotechnology*, *21*(32), 325702. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20639589

[108] Warner, J. H., Rümmeli, M. H., Bachmatiuk, A., & Büchner, B. (2010b). Atomic resolution imaging and topography of boron nitride sheets produced by chemical exfoliation. *ACS nano*, *4*(3), 1299–1304. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20148574

[109] Warner, J. H., Rümmeli, M. H., Bachmatiuk, A., & Büchner, B. (2010c). Structural transformations of carbon chains inside nanotubes. *Physical Review B*, *81*(15), 3–7. doi:10.1103/PhysRevB.81.155419

[110] Warner, J. H., Rümmeli, M. H., Bachmatiuk, A., Wilson, M., & Büchner, B. (2010). Examining co-based nanocrystals on graphene using low-voltage aberration-corrected transmission electron microscopy. *ACS nano*, *4*(1), 470–476. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20020749

[111] Warner, J. H., Rümmeli, M. H., Gemming, T., Büchner, B., & Briggs, G. A. D. (2009). Direct imaging of rotational stacking faults in few layer graphene. *Nano Letters*, *9*(1), 102–106. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19072722

[112] Warner, J. H., Schäffel, F., Rümmeli, M. H., & Büchner, B. (2009). Examining the Edges of Multi-Layer Graphene Sheets. *Chemistry of Materials*, *21*(12), 2418–2421. doi:10.1021/cm900023d

[113] Warner, J. H., Schäffel, F., Zhong, G., Rümmeli, M. H., Büchner, B., Robertson, J., & Briggs, G. A. D. (2009). Investigating the diameter-dependent stability of single-walled carbon nanotubes. *ACS nano*, *3*(6), 1557–1563.

[114] Warner, J., Ito, Y., Rümmeli, M., Gemming, T., Büchner, B., Shinohara, H., & Briggs, G. A. (2009). One-Dimensional Confined Motion of Single Metal Atoms inside Double-Walled Carbon Nanotubes. *Physical Review Letters*, *102*(19), 80–83. doi:10.1103/PhysRevLett.102.195504

[115] Watanabe, M., Harmer, M. P., Jain, H., Kiely, C. J., & Landskron, K. Acquisition of a State-of-the-Art Aberration-Corrected Analytical Electron Microscope with Enhanced Atomic-Level Spectrometry and Low-Voltage Performance. Award Abstract #1040229 (2010).

[116] Westenfelder, B, Meyer, J. C., Biskupek, J., Algara-Siller, G., Lechner, L. G., Kusterer, J., *et al.* (2011). Graphene-based sample supports for in situ high-resolution TEM electrical investigations. *Journal of Physics D: Applied Physics*, *44*(5), 055502. doi:10.1088/0022-3727/44/5/055502

[117] Westenfelder, Benedikt, Meyer, J. C., Biskupek, J., Kurasch, S., Scholz, F., Krill, C. E., & Kaiser, U. (2011). Transformations of Carbon AdsorbatesonGraphene Substrates under Extreme Heat. *Nano Letters*, 5123–5127.

[118] Wilson, N. R., Pandey, P. A., Beanland, R., Young, R. J., Kinloch, I. A., Gong, L., *et al.* (2009). Graphene oxide: structural analysis and application as a highly transparent support for electron microscopy. *ACS nano*, *3*(9), 2547–2556. Retrieved from http://dx.doi.org/10.1021/nn900694t

[119] Wu, Y. A., Kirkland, A. I., Schäffel, F., Porfyrakis, K., Young, N. P., Briggs, G. A. D., & Warner, J. H. (2011). Utilizing boron nitride sheets as thin supports for high resolution imaging of nanocrystals. *Nanotechnology*, *22*(19), 195603. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21430323

[120] Xie, L., Wang, H., Jin, C., Wang, X., Jiao, L., Suenaga, K., & Dai, H. (2011). Graphene nanoribbons from unzipped carbon nanotubes: atomic structures, Raman spectroscopy, and electrical properties. *Journal of the American Chemical Society*, *133*(27), 10394–10397. Retrieved from http://arxiv.org/abs/1106.3675

[121] Zheng, H., Rivest, J. B., Miller, T. A., Sadtler, B., Lindenberg, A., Toney, M. F., *et al.* (2011). Observation of transient structural-transformation dynamics in a Cu2S nanorod. *Science*, *333*(6039), 206–209. Retrieved from http://www.sciencemag.org/cgi/doi/10.1126/science.1204713

[122] Zhu, Y., Murali, S., Stoller, M. D., Ganesh, K. J., Cai, W., Ferreira, P. J., *et al.* (2011). Carbon-Based Supercapacitors Produced by Activation of Graphene. *Science*, *332*, 1537–1541.

[123] Zuo, J.-M., Zhang, J., Huang, W., Ran, K., & Jiang, B. (2011). Combining real and reciprocal space information for aberration free coherent electron diffractive imaging. *Ultramicroscopy*, *111*(7), 817–823.