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Materials Engineering  
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## Qualifications

Ph.D. Rensselaer Polytechnic Institute, Advisor: Prof. Pulickel Ajayan, Rensselaer Polytechnic Institute  
2002 → 2005

M.Eng. Ph.D. Rensselaer Polytechnic Institute, Advisor: Prof. Pulickel Ajayan, Rensselaer Polytechnic Institute  
2000 → 2002

B.Tech Indian Institute of Technology - Madras, Indian Institute of Technology - Madras  
1996 → 2000

## Employment

### Professor of Nanomaterials

Academic (Teaching & Research) Professor  
Materials Engineering  
The University of Manchester  
1 Aug 2019 → present

### Senior post-doctoral research associate

Massachusetts Institute of Technology  
Cambridge, United States  
1 Jan 2019 → 1 Jan 2020

### Alexander von Humboldt Research Fellow

Karlsruher Institut für Technologie (KIT)  
Karlsruhe, Germany  
1 Jan 2017 → 1 Jan 2019

## Research output

### Tuneable electrohydrodynamics of core-shell graphene oxide vortex rings

Shao, Y., Nie, K., Iliut, M., Box, F., Luan, D., Shen, Y., Wang, W., Sampson, W., Dierking, I. & Vijayaraghavan, A., 1 Apr 2023, In: Journal of Molecular Liquids.

### Modelling graphene-polymer heterostructure MEMS membranes with the Föppl-von Kármán equations

Smith, K., Retallick, A., Melendrez Armada, D., Vijayaraghavan, A. & Heil, M., 2023, In: ACS Applied Materials and Interfaces .

### Acidic and Basic Self-Assembling Peptide and Peptide-Graphene Oxide Hydrogels: Characterisation and Effect on Encapsulated Nucleus Pulposus Cells

Ligorio, C., Vijayaraghavan, A., Hoyland, J. & Saiani, A., 15 Apr 2022, In: Acta Biomaterialia. 143, p. 145-158

### Protein spot arrays on graphene oxide coatings for efficient single-cell capture

Kumar, R., Llewellyn, S., Vasantham, S. K., Nie, K., Sekula-Neuner, S., Vijayaraghavan, A. & Hirtz, M., 10 Mar 2022, (E-pub ahead of print) In: Scientific Reports. 3895 .

### Biochemical Functionalization of Graphene Oxide for Directing Stem Cell Differentiation

Verre, A. F., Faroni, A., Iliut, M., Silva, C., Muryn, C., Reid, A. & Vijayaraghavan, A., 24 Sept 2021, (Accepted/In press) In: Journal of Molecular Structure.

**TGF-β3-Loaded Graphene Oxide - Self-Assembling Peptide Hybrid Hydrogels as Functional 3D Scaffolds for the Regeneration of the Nucleus Pulposus**

Ligorio, C., O'Brien, M., Hodson, N. W., Mironov, A., Iliut, M., Miller, A. F., Vijayaraghavan, A., Hoyland, J. A. & Saiani, A., 1 Jun 2021, In: *Acta Biomaterialia*. 127, p. 116-130

**Gas separation performance of MMMs containing (PIM-1)-functionalized GO derivatives**

Luque-alled, J. M., Ameen, A., Alberto, M., Tamaddondar, M., Foster, A. B., Budd, P. M., Vijayaraghavan, A. & Gorgojo, P., 1 Apr 2021, In: *Journal of Membrane Science*. 623, p. 118902-118902.

**Graphene Oxide Substrate Promotes Neurotrophic Factor Secretion and Survival of Human Schwann-Like Adipose Mesenchymal Stromal Cells**

Llewellyn, S., Faroni, A., Iliut, M., Bartlam, C., Vijayaraghavan, A. & Reid, A., 4 Mar 2021, In: *Advanced Biology*.

**Hybrid molecular/mineral lyotropic liquid crystal system of CTAB and graphene oxide in water**

Shao, Y., Iliut, M., Dierking, I. & Vijayaraghavan, A., 1 Mar 2021, In: *Carbon*. p. 105-114

**Fabrication and electrochemical response of pristine graphene ultramicroelectrodes**

Goodwin, S., Coldrick, Z., Heeg, S., Grieve, B., Vijayaraghavan, A. & Hill, E. W., 26 Feb 2021, In: *Carbon*. 177, p. 207-215  
9 p.

**Elastic flow instabilities and macroscopic textures in graphene oxide lyotropic liquid crystals**

Wychowaniec, J., Iliut, M., Borek, B., Muryn, C., Mykhaylyk, O. O., Edmondson, S. & Vijayaraghavan, A., 8 Jan 2021, In: *n p j 2D Materials and Applications*. 5, 11, 11 .

**Development of an open-source thermally stabilized quartz crystal microbalance instrument for biomolecule-substrate binding assays on gold and graphene**

Melendrez Armada, D., Hampitak, P., Jowitt, T., Iliut, M. & Vijayaraghavan, A., 2021, In: *Analytica Chimica Acta*.

**High-grip and hard-wearing graphene reinforced polyurethane coatings**

Alberto, M., Iliut, M., Pitchan, M. K., Behnsen, J. & Vijayaraghavan, A., 2021, In: *Composites. Part B: Engineering*.

**On the biocompatibility of graphene oxide towards vascular smooth muscle cells**

Ren, J., Braileanu, G., Gorgojo, P., Valles, C., Dickinson, A., Vijayaraghavan, A. & Wang, T., 15 Oct 2020, (E-pub ahead of print) In: *Nanotechnology*.

**A point-of-care immunosensor based on quartz crystal microbalance with graphene biointerface for antibody assay**

Hampitak, P., Jowitt, T., Melendrez Armada, D., Fresquet, M., Hamilton, P., Iliut, M., Nie, K., Spencer, B., Lennon, R. & Vijayaraghavan, A., 2 Oct 2020, (Accepted/In press) In: *ACS Sensors*.

**Protein interactions and conformations on graphene-based materials mapped using quartz-crystal microbalance with dissipation monitoring (QCM-D)**

Hampitak, P., Melendrez Armada, D., Iliut, M., Fresquet, M., Parsons, N., Spencer, B., Jowitt, T. & Vijayaraghavan, A., 26 Apr 2020, (Accepted/In press) In: *Carbon*.

**Graphene oxide containing self-assembling peptide hybrid hydrogels as a potential 3D injectable cell delivery platform for intervertebral disc repair applications.**

Ligorio, C., Zhou, M., Wychowaniec, J., Zhu, X., Bartlam, C., Miller, A., Vijayaraghavan, A., Hoyland, J. & Saiani, A., 12 May 2019, In: *Acta Biomaterialia*. 92, p. 92-103

**PVDF membranes containing reduced graphene oxide: effect of degree of reduction on membrane distillation performance**

Abdel-karim, A., Luque-Allied, J. M., Leaper, S., Alberto, M., Fan, X., Vijayaraghavan, A., Gad-Allah, T. A., El-Kalliny, A. S., Szekely, G., Ahmed, S. I. A., Holmes, S. & Gorgojo, P., 15 Feb 2019, In: *Desalination*. 452, p. 196-207 11 p.

### **Initial Studies Directed toward the Rational Design of Aqueous Graphene Dispersants**

Heard, K. W. J., Bartlam, C., Williams, C. D., Zhang, J., Alwattar, A. A., Little, M. S., Parry, A. V. S., Porter, F. M., Vincent, M. A., Hillier, I. H., Siperstein, F. R., Vijayaraghavan, A., Yeates, S. G. & Quayle, P., 31 Jan 2019, In: ACS Omega. 4, 1, p. 1969-1981 13 p.

### **Nanometre electron beam sculpting of suspended graphene and hexagonal boron nitride heterostructures**

Clark, N., Lewis, E., Haigh, S. & Vijayaraghavan, A., 2019, In: 2D Materials.

### **Polyethersulfone membranes: from ultrafiltration to nanofiltration via the incorporation of APTS functionalized-graphene oxide**

Luque-Alled, J. M., Abdel-karim, A., Alberto, M., Leaper, S., Perez-page, M., Huang, K., Vijayaraghavan, A., El-kalliny, A. S., Holmes, S. M. & Gorgojo, P., 2019, In: Separation and Purification Technology. p. 115836

### **Resonant, Plasmonic Raman Enhancement of $\alpha$ -6T Molecules Encapsulated in Carbon Nanotubes**

Wasserroth, S., Heeg, S., Mueller, N. S., Kusch, P., Huebner, U., Gaufres, E., Tang, N.Y.-W., Martel, R., Vijayaraghavan, A. & Reich, S., 2019, In: The Journal of Physical Chemistry C.

### **Graphene oxide films for field effect surface passivation of silicon for solar cells**

Vaqueiro-Contreras, M., Bartlam, C., Bonilla, R. S., Markevich, V. P., Halsall, M. P., Vijayaraghavan, A. & Peaker, A. R., 1 Dec 2018, In: Solar Energy Materials and Solar Cells. 187, p. 189-193 5 p.

### **Probing hotspots of plasmon-enhanced Raman scattering by nanomanipulation of carbon nanotubes**

Heeg, S., Clark, N. & Vijayaraghavan, A., 16 Nov 2018, In: Nanotechnology. 29, 46, p. 465710

### **Study on the formation of thin film nanocomposite (TFN) membranes of polymers of intrinsic microporosity and graphene-like fillers: effect of lateral flake size and chemical functionalization**

Alberto, M., Bhavsar, R., Luque-Alled, J. M., Prestat, E., Gao, L., Budd, M., Vijayaraghavan, A., Szekely, G., Holmes, S. & Gorgojo, P., 1 Nov 2018, In: Journal of Membrane Science. 565, p. 390-401

### **Nanoscale Infrared Identification and Mapping of Chemical Functional Groups on Graphene**

Bartlam, C., Morsch, S., Heard, K., Quayle, P., Yeates, S. & Vijayaraghavan, A., Nov 2018, In: Carbon. 139

### **Impeded physical aging in PIM-1 membranes containing graphene-like fillers**

Alberto, M., Bhavsar, R., Luque-Alled, J. M., Vijayaraghavan, A., Budd, P. & Gorgojo, P., 1 Oct 2018, In: Journal of Membrane Science. 563, p. 513-520 7 p.

### **Designing peptide / graphene hybrid hydrogels through fine tuning of molecular interactions**

Wychowaniec, J., Iliut, M., Zhou, M., Moffat, J., Elsayy, M., Anacleto Pinheiro, W., Hoyland, J., Miller, A., Vijayaraghavan, A. & Saiani, A., 19 Apr 2018, In: Biomacromolecules. 19, 7, p. 2731-2741 11 p.

### **Adsorption and binding dynamics of graphene-supported phospholipid membranes using the QCM-D technique**

Meléndrez Armada, D., Jowitt, T., Iliut, M., Verre, A. F., Goodwin, S. & Vijayaraghavan, A., 2018, In: Nanoscale.

### **Flux-enhanced PVDF mixed matrix membranes incorporating APTS-functionalized graphene oxide for membrane distillation**

Leaper, S., Ahmed Abdelkarim, A., Faki, B., Luque-Alled, J. M., Alberto, M., Vijayaraghavan, A., Holmes, S., Szekely, G., Badawy, M. I., Shokri, N. & Gorgojo, P., 2018, In: Journal of Membrane Science.

### **Improving the glial differentiation of human Schwann-like adipose-derived stem cells with graphene oxide substrates**

Verre, A. F., Faroni, A., Iliut, M., Silva, C., Mury, C., Reid, A. & Vijayaraghavan, A., 2018, In: Interface Focus.

### **Ternary nanocomposites of reduced graphene oxide, polyaniline and hexaniobate: hierarchical architecture and high polaron formation**

Silva, C. H. B., Iliut, M., Murny, C., Berger, C., Coldrick, Z., Constantino, V. R. L., Temperini, M. L. A. & Vijayaraghavan, A., 2018, In: Beilstein Journal of Nanotechnology. 9, p. 2936-2946

**Capacitive pressure sensing with suspended graphene-polymer heterostructure membranes**

Berger, C., Phillips, R., Centeno, A., Zurutuza, A. & Vijayaraghavan, A., 6 Dec 2017, In: Nanoscale. 9, 44, p. 17439-17449

**Touch-mode capacitive pressure sensor with graphene-polymer heterostructure membrane**

Berger, C., Phillips, R., Pasternak, I., Sobieski, J., Strupinski, W. & Vijayaraghavan, A., 30 Nov 2017, In: 2 D Materials.

**Raman mapping analysis of graphene integrated silicon micro-ring resonators**

Hussein, S. M. A., Crowe, I., Clark, N., Milosevic, M., Vijayaraghavan, A., Gardes, F. Y., Mashanovich, G. Z. & Halsall, M., 22 Nov 2017, In: Nanoscale Research Letters. 12, 200.

**Evaluating arbitrary strain configurations and doping in graphene with Raman spectroscopy**

Mueller, N. S., Heeg, S., Pena Alvarez, M., Kusch, P., Wasserroth, S., Clark, N., Schedin, B., Parthenios, J., Papagelis, K., Galiotis, C., Kalbac, M., Vijayaraghavan, A., Huebner, U., Gorbachev, R., Frank, O. & Reich, S., 6 Nov 2017, In: 2D Materials. 5, 1, 015016.

**High flux and fouling resistant flat sheet polyethersulfone membranes incorporated with graphene oxide for ultrafiltration applications**

Leeper, S., Alberto, M., Vijayaraghavan, A., Holmes, S., Souaya, E. R., Badawy, M. I., Gorgojo, P. & Ahmed Abdelkarim, A., 16 Oct 2017, In: Chemical Engineering Journal. 334, p. 789-799 11 p.

**Biomimetic Phospholipid Membrane Organization on Graphene and Graphene Oxide Surfaces: A Molecular Dynamics Simulation Study**

Willems, N., Urtizberea, A., Verre, A. F., Iliut, M., Lelimosin, M., Hirtz, M., Vijayaraghavan, A. & Sansom, M. S. P., 6 Feb 2017, In: ACS Nano. 11, 2, p. 1613-1625 13 p.

**Confinement effects on lyotropic nematic liquid crystal phases of graphene oxide dispersions**

Al-Zangana, S., Iliut, M., Turner, M., Vijayaraghavan, A. & Dierking, I., 2017, In: 2 D Materials.

**Enhanced organophilic separations with mixed matrix membranes of polymers of intrinsic microporosity and graphene-like fillers**

Alberto, M., Luque-Alled, J. M., Gao, L., Iliut, M., Prestat, E., Newman, L., Haigh, S., Vijayaraghavan, A., Budd, P. & Gorgojo, P., 2017, In: Journal of Membrane Science. 526

**Plasmonic enhancement of SERS measured on molecules in carbon nanotubes**

Mueller, N. S., Heeg, S., Kusch, P., Gaufrès, E., Tang, N. Y. W., Hübner, U., Martel, R., Vijayaraghavan, A. & Reich, S., 2017, In: Faraday Discussions. 205, p. 85-103 19 p.

**Attoliter Chemistry for Nano-Scale Functionalization of Graphene**

Hirtz, M., Varey, S., Fuchs, H. & Vijayaraghavan, A., 14 Dec 2016, In: ACS Applied Materials and Interfaces. p. 33371-33376 6 p.

**Properties of a Thermotropic Nematic Liquid Crystal Doped with Graphene Oxide**

Al-Zangana, S., Iliut, M., Turner, M., Vijayaraghavan, A. & Dierking, I., Oct 2016, In: Advanced Optical Materials. 4, 10, p. 1541-1548 8 p.

**Graphene and water-based elastomers thin-film composites by dip-moulding**

Iliut, M., Silva, C., Herrick, S., McGlothlin, M. & Vijayaraghavan, A., Sept 2016, In: Carbon. 106, p. 228-232 5 p.

**Dielectric spectroscopy of isotropic liquids and liquid crystal phases with dispersed graphene oxide**

Al-Zangana, S., Iliut, M., Boran, G., Turner, M., Vijayaraghavan, A. & Dierking, I., 24 Aug 2016, In: Scientific Reports. 6, 31885.

**Fabrication and modelling of fractal, biomimetic, micro and nano-topographical surfaces**

Kyle, D., Oikonomou, A., Hill, E., Vijayaraghavan, A. & Bayat, A., 2016, In: *Bioinspiration & Biomimetics*. 11, 4, 046009.

**Graphene Oxide promotes embryonic stem cell differentiation to haematopoietic lineage**

Garcia Alegria, E., Iliut, M., Stefanska, M., Silva, C., Heeg, S., Kimber, S., Kouskoff, V., Lacaud, G., Vijayaraghavan, A. & Batta, K., 2016, In: *Scientific Reports*. 6, 25917.

**Self-limiting Multiplexed Assembly of Lipid Membranes on Large-area Graphene Sensor Arrays**

Hirtz, M., Oikonomou, A., Clark, N., Kim, Y. J., Fuchs, H. & Vijayaraghavan, A., 2016, In: *Nanoscale*. 8, p. 15147-15151 5 p.

**Ultra-thin graphene-polymer heterostructure membranes**

Berger, C., Dirschka, M. & Vijayaraghavan, A., 2016, In: *Nanoscale*.

**Stokes and anti-Stokes Raman spectra of the high-energy C-C stretching modes in graphene and diamond**

Jorio, A., Kasperczyk, M., Clark, N., Neu, E., Maletinsky, P., Vijayaraghavan, A. & Novotny, L., Nov 2015, In: *Physica Status Solidi. B: Basic Research*. 252, 11, p. 2380-2384 4 p.

**Graphene oxide selectively targets cancer stem cells, across multiple tumor types: implications for non-toxic cancer treatment, via "differentiation-based nano-therapy".**

Fiorillo, M., Verre, A. F., Iliut, M., Peiris Pages, M., Ozsvari, B., Gandara, R., Cappello, A. R., Sotgia, F., Vijayaraghavan, A. & Lisanti, M. P., 24 Feb 2015, In: *Oncotarget*. 6, 6, p. 3553-3562

**Scalable bottom-up assembly of suspended carbon nanotube and graphene devices by dielectrophoresis**

Oikonomou, A., Clark, N., Heeg, S., Kretinin, A., Varey, S., Yu, G. & Vijayaraghavan, A., 2015, In: *physica status solidi (RRL) – Rapid Research Letters*. 9999, 9999, p. 539-543 5 p.

**Plasmon-enhanced Raman scattering by carbon nanotubes optically coupled with near-field cavities**

Heeg, S., Oikonomou, A., Fernandez-Garcia, R., Lehmann, C., Maier, S. A., Vijayaraghavan, A. & Reich, S., 9 Apr 2014, In: *Nano Letters*. 14, 4, p. 1762-1768 6 p.

**Determination of the quasi-TE mode (in-plane) graphene linear absorption coefficient via integration with silicon-on-insulator racetrack cavity resonators**

Crowe, I. F., Clark, N., Hussein, S., Towilson, B., Whittaker, E., Milosevic, M. M., Gardes, F. Y., Mashanovich, G. Z., Halsall, M. P., Vijayaraghavan, A. & Vijayaraghavan, A., 2014, In: *Optics Express*. 22, 15, p. 18625-18632 7 p.

**Engaging a wider audience.**

Vijayaraghavan, A., 2014, In: *Nature Nanotechnology*. 9

**Multiplexed Biomimetic Lipid Membranes on Graphene by Dip-Pen Nanolithography**

Hirtz, M., Oikonomou, A., Varey, S., Fuchs, H. & Vijayaraghavan, A., 2014, In: *Microscopy and Microanalysis*. 20, S3, p. 2058-2059 2 p.

**Optical-Phonon Resonances with Saddle-Point Excitons in Twisted-Bilayer Graphene**

Jorio, A., Kasperczyk, M., Clark, N., Neu, E., Maletinsky, P., Vijayaraghavan, A. & Novotny, L., 2014, In: *Nano Letters*. 14, 10, p. 5687-5692 6 p.

**Plasmon-enhanced Raman scattering by suspended carbon nanotubes**

Heeg, S., Clark, N., Oikonomou, A., Vijayaraghavan, A., Reich, S. & Clark, N., 2014, In: *physica status solidi (RRL) - Rapid Research Letters*. 08, 9999, p. 785-789 5 p.

**Self-assembly of one dimensional DNA-templated structures**

Catherall, T., Huskisson, D., McAdams, S. & Vijayaraghavan, A., 2014, In: *Journal of Materials Chemistry C*. 2

### **Strained graphene as a local probe for plasmon-enhanced Raman scattering by gold nanostructures**

Heeg, S., Oikonomou, A., Garcia, R. F., Maier, S. A., Vijayaraghavan, A. & Reich, S., Dec 2013, In: *Physica Status Solidi - Rapid Research Letters*. 7, 12, p. 1067-1070 3 p.

### **Ultrafast quantitative nanomechanical mapping of suspended graphene**

Clark, N., Oikonomou, A. & Vijayaraghavan, A., Dec 2013, In: *Physica Status Solidi (B) Basic Research*. 250, 12, p. 2672-2677 5 p.

### **Polarized plasmonic enhancement by Au nanostructures probed through raman scattering of suspended graphene**

Heeg, S., Fernandez-Garcia, R., Oikonomou, A., Schedin, F., Narula, R., Maier, S. A., Vijayaraghavan, A. & Reich, S., 9 Jan 2013, In: *Nano Letters*. 13, 1, p. 301-308 7 p.

### **Bottom-up assembly of nano-carbon devices by dielectrophoresis**

Vijayaraghavan, A., 2013, In: *Physica Status Solidi (B) Basic Research*. 250, p. 2505-2517 13 p.

### **Catalytic subsurface etching of nanoscale channels in graphite.**

Lukas, M., Meded, V., Vijayaraghavan, A., Song, L., Ajayan, P. M., Fink, K., Wenzel, W. & Krupke, R., 2013, In: *Nature Communications*. 4, p. 1379

### **Charge transfer at junctions of a single layer of graphene and a metallic single walled carbon nanotube.**

Paulus, G. L. C., Wang, Q. H., Ulissi, Z. W., McNicholas, T. P., Vijayaraghavan, A., Shih, C.-J., Jin, Z. & Strano, M. S., 2013, In: *Small*. 9, p. 1954-63 1890 p.

### **Directed self-assembly of block copolymers for use in bit patterned media fabrication**

Griffiths, R. A., Williams, A., Oakland, C., Roberts, J., Vijayaraghavan, A. & Thomson, T., 2013, In: *Journal of Physics D: Applied Physics*. 46, 50, 503001.

### **Multiplexed biomimetic lipid membranes on graphene by dip-pen nanolithography.**

Hirtz, M., Oikonomou, A., Georgiou, T., Fuchs, H. & Vijayaraghavan, A., 2013, In: *Nature Communications*. 4, 2591.

### **Self assembled monolayers (SAMs) on metallic surfaces (gold and graphene) for electronic applications**

Newton, L., Slater, T., Clark, N. & Vijayaraghavan, A., 2013, In: *Journal of Materials Chemistry C*. 1, 3, p. 376-393 18 p.

### **Applications of chirality-sorted individual single-wall carbon nanotube devices**

Vijayaraghavan, A., 21 Apr 2012, In: *Journal of Materials Chemistry*. 22, 15, p. 7083-7087 4 p.

### **Anisotropic organization and microscopic manipulation of self-assembling synthetic porphyrin microrods that mimic chlorosomes: Bacterial light-harvesting systems**

Chappaz-Gillot, C., Marek, P. L., Blaive, B. J., Canard, G., Bürck, J., Garab, G., Hahn, H., Jávorfí, T., Kelemen, L., Krupke, R., Mössinger, D., Ormos, P., Reddy, C. M., Roussel, C., Steinbach, G., Szabó, M., Ulrich, A. S., Vanthuyne, N., Vijayaraghavan, A. & Zupcanova, A. & 1 others, Balaban, T. S., 18 Jan 2012, In: *Journal of the American Chemical Society*. 134, 2, p. 944-954 10 p.

### **A Chemists Method for Making Pure Clean Graphene**

Vijayaraghavan, A., Malik, S., Ernie, R., Ariga, K., Khalakan, I., Hill, J. P., Ottaviano, L. (Editor) & Morandi, V. (Editor), 2012, *GraphiTA 2011*. p. 129-136

### **Growth, dispersion, and electronic devices of nitrogen-doped single-wall carbon nanotubes**

Oikonomou, A., Susi, T., Kauppinen, E. I. & Vijayaraghavan, A., 2012, In: *Physica Status Solidi (B)*. 249, 12, p. 2416-2419 4 p.

### **Bi- and trilayer graphene solutions**

Shih, C.-J., Vijayaraghavan, A., Krishnan, R., Sharma, R., Han, J.-H., Ham, M.-H., Jin, Z., Lin, S., Paulus, G. L. C., Reuel, N. F., Hua, Q., Blankshtein, D., Strano, M. S. & Wang, Q. H., Jul 2011, In: *Nature Nanotechnology*. 6, 7, p. 439-445 7 p.

**A scalable, CMOS-compatible assembly of ambipolar semiconducting single-walled carbon nanotube devices.**

Ganzhorn, M., Vijayaraghavan, A., Green, A. A., Dehm, S., Voigt, A., Rapp, M., Hersam, M. C. & Krupke, R., 2011, In: *Advanced Materials*. 23, 15, p. 1734-8 1725 p.

**Graphene sensors**

Hill, E. W., Vijayaraghavan, A. & Novoselov, K., 2011, In: *IEEE Sensors Journal*. 11, 12, p. 3161-3170 9 p., 6016205.

**Hydrogen sensing with diameter- and chirality-sorted carbon nanotubes.**

Ganzhorn, M., Vijayaraghavan, A., Dehm, S., Hennrich, F., Green, A. A., Fichtner, M., Voigt, A., Rapp, M., von Löhneysen, H., Hersam, M. C., Kappes, M. M. & Krupke, R., 2011, In: *ACS Nano*. 5, 3, p. 1670-6 1663 p.

**Imaging conduction pathways in carbon nanotube network transistors by voltage-contrast scanning electron microscopy**

Vijayaraghavan, A., Timmermans, M. Y., Grigoras, K., Nasibulin, A. G., Kauppinen, E. I. & Krupke, R., 2011, In: *Nanotechnology*. 22, 26, 265715.

**High purity graphenes prepared by a chemical intercalation method**

Malik, S., Vijayaraghavan, A., Erni, R., Ariga, K., Khalakhan, I. & Hill, J. P., Oct 2010, In: *Nanoscale*. 2, 10, p. 2139-2143 4 p.

**Toward single-chirality carbon nanotube device arrays**

Vijayaraghavan, A., Hennrich, F., Stürzl, N., Engel, M., Ganzhorn, M., Oron-Carl, M., Marquardt, C. W., Dehm, S., Lebedkin, S., Kappes, M. M. & Krupke, R., 25 May 2010, In: *ACS Nano*. 4, 5, p. 2748-2754 6 p.

**Imaging defects and junctions in single-walled carbon nanotubes by voltage-contrast scanning electron microscopy**

Vijayaraghavan, A., Marquardt, C. W., Dehm, S., Hennrich, F. & Krupke, R., Feb 2010, In: *Carbon*. 48, 2, p. 494-500 6 p.

**Phonon-assisted electroluminescence from metallic carbon nanotubes and graphene.**

Essig, S., Marquardt, C. W., Vijayaraghavan, A., Ganzhorn, M., Dehm, S., Hennrich, F., Ou, F., Green, A. A., Sciascia, C., Bonaccorso, F., Bohnen, K.-P.K.-P., Löhneysen, H. V., Kappes, M. M., Ajayan, P. M., Hersam, M. C., Ferrari, A. C., Krupke, R. & Löhneysen, H. V., 2010, In: *Nano Letters*. 10, 5, p. 1589-94 1494 p.

**Synthesis of Atomically Thin WO<sub>3</sub> Sheets from Hydrated Tungsten Trioxide**

Kalantar-zadeh, K., Vijayaraghavan, A., Ham, M.-H., Zheng, H., Breedon, M. & Strano, M. S., 2010, In: *Chemistry of Materials*. 22, 19, p. 5660-5666 7 p.

**Dielectrophoretic Assembly of High-Density Arrays of Individual Graphene Devices for Rapid Screening**

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**Activities**