# CURRICULUM VITAE
# CHANG-YONG NAM


Scientist
Center for Functional Nanomaterials (CFN)
Brookhaven National Laboratory (BNL)
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## Education

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|---|---|---|---|
| University of Pennsylvania | Materials Science and Engineering | Ph.D. | 2007 |
| Korea Adv. Inst. Sci. Tech. (KAIST) | Materials Science and Engineering | M.S. | 2001 |
| Korea University | Metallurgical Engineering | B.E. | 1999 |

(Leave of absence, Military Service in Republic of Korea Army, 1995 − 1997)

## Professional Appointments

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|---|---|---|
| 2016 – p | Scientist | Center for Functional Nanomaterials, BNL |
| 2014 – p | Adjunct Professor | Dept. Mater. Sci. Eng., Stony Brook University |
| 2013 – 2016 | Associate Scientist | Center for Functional Nanomaterials, BNL |
| 2010 – 2013 | Assistant Scientist | Center for Functional Nanomaterials, BNL |
| 2007 – 2010 | Goldhaber Distinguished Fellow | Center for Functional Nanomaterials, BNL |
| 2001 – 2002 | Commissioned Researcher | Mater. Research Div., Korea Inst. Sci. Tech. (KIST) |
| 2001 Spring | Visiting Research Assistant | Brown University, Division of Engineering |

## Awards/Distinctions

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| 2011 | Spotlight Award | Brookhaven National Laboratory |
| 2010 | Tenure-Track Assist. Professorship (offer declined) | Temple Univ., Dept. Mech. Eng. |
| 2007 – 2010 | Goldhaber Distinguished Fellowship | Brookhaven National Laboratory |
| 2003 | Passed Ph.D. Qualifying Exam with Distinction | Univ. Penn., Dept. Mater. Sci. Eng. |
| 2002 – 2007 | Graduate Research Fellowship | Univ. Penn., Dept. Mater. Sci. Eng. |
| 2001 | Brain Korea 21 Financial Award for Abroad Research | KAIST |
| 1999 – 2001 | Korean Government Scholarship | KAIST |
| 1999 | Merit-based Scholarship | Korea University |

## Research Synopsis

- Infiltration synthesis (atomic layer deposition) of semiconductor nanostructures & organic-inorganic hybrids and their application in electronic devices, sensors, and energy technologies
- Device physics & material processing in conjugated polymers & emerging semiconductors for organic & hybrid photovoltaics and optoelectronic devices
- Application of self-assembled diblock copolymers for patterning functional inorganic nanostructures

## Professional and Synergistic Activities

*Journal Article Reviewer (since 2007)*

Advanced Materials, Advanced Electronic Materials, Advanced Functional Materials, Advanced Energy Materials, Advanced Optical Materials, Advanced Materials Interfaces, Physica Status Solidi, Nano Letters, ACS Nano, ACS Applied Materials & Interfaces, Macromolecules, Chemistry of Materials, Langmuir, Journal of Physical Chemistry, Nanoscale, RSC Advances, Journal of Materials Chemistry, PCCP, ChemPhysChem, ChemCom, Organic Electronics, Applied Physics Letters, Journal of Applied Physics, Nanotechnology

*Grant Proposal Reviewer*

- The Chinese University of Hong Kong, General Research Fund/Early Career Scheme, 2013
- U.S. Department of Energy Office of Basic Energy Sciences (BES) Grants, 2012
- U.S. Department of Energy Experimental Program to Stimulate Competitive Research (EPSCoR) Implementation Grants, 2011
- The City University of New York Research Award Program (PSC-CUNY), 2011

*Symposium Organizing Activity*

7. Co-Organizer, 2017 Functional Nanomaterials Symposium, The Minerals, Metals and Materials Society (TMS) 146th Annual Meeting & Exhibition (Feb. 2017), San Diego CA
6. Co-Organizer, International Symposium on Science and Technology of 2D Materials, scheduled in Feb. 2017, University of Central Florida, Orlando FL
5. Co-Organizer, Workshop on "Two-Dimensional van der Waals Semiconductors for Energy Conversion Applications", 2016 NSLS-II & CFN Joint Users' Meeting, Upton NY
4. Technical Review Committee, 2015 – p, TechConnect Nanotech Conference
3. International Advisory Committee, 2015 – p, International Conference on Advances in Functional Materials (AFM)
2. Co-Organizer, Symposium K on "Hierarchically Structured Materials for Energy Conversion and Storage", 2012 Materials Research Society (MRS) Fall Meeting November 2012, Boston MA
1. Organizing Chair, MRS-Joint Symposium on "Ion Beam and Nanomaterials", XVIII International Materials Research Congress (IMRC), August 2009, Cancún, Mexico

*Professional Society Affiliation*

- The Minerals, Metals and Materials Society (TMS): Committee Member (2016 – p), JOM advisor (2017 – p), Functional Materials Division, Nanomaterials Committee;
- Materials Research Society (MRS)
- American Vacuum Society (AVS)
- Korean-American Scientists and Engineers Association (KSEA): Treasurer, then Auditor of New York Metropolitan Chapter (2010 – p)

**Research Support and Grant Activities**

*Current*

Team Member, U.S. Department of Energy Office of Science for the CFN, BNL, Contract No. DE-SC0012704, PI: Charles Black, 2017 – p (~$20M/yr, continuously renewable).

PI, CFN Intra-Department Grant, BNL, "High-Performance Greenhouse Gas Sensing Architecture Based on Metal Oxide Nanostructures Derived from Polymer Nanotemplates", 2017 – p ($300K)

*Past*

PI, CFN Director's Research Funding, BNL, "Utilization of Resonant Energy Transfer in Ultrathin Si Solar Cells", 2012 – 2014 ($300K).

**Invited Seminars/Talks/Lectures**

30. Stevens Institute of Technology, Dept. Mechanical Engineering, May 2017, Hoboken NJ, Invited Seminar, "Synthesis of Hybrid Materials and Direct Patterning Inorganic Nanostructures via Infiltration Synthesis"
29. KSEA Northeast Regional Conference, April 2017, Newark NJ, Invited Talk, "Application of Resonant Energy Transfer for Enhanced Light Harvesting in Ultrathin Inorganic Solar Cell and Two-Dimensional Layered Semiconductors".
28. University of Central Florida, NanoScience Technology Center, Orlando FL, February 2017, Invited Seminar, "Synthesis of Hybrid Materials and Direct Patterning Inorganic Nanostructures via Infiltration Synthesis"
27. University of Texas at Dallas, Dept. Materials Science and Engineering, Richardson TX, August

2016, Invited Seminar, "Synthesis of Hybrid Materials and Direct Patterning Inorganic Nanostructures via Infiltration Synthesis"

26. 2016 US-Korea Conference, August 2016, Dallas TX, Invited Talk, "Application of Resonant Energy Transfer for Enhanced Light Harvesting in Ultrathin Inorganic Solar Cell and Two-Dimensional Layered Semiconductors"
25. Oak Ridge National Laboratory, Center for Nanophase Materials Sciences, June 2016, Oak Ridge TN, Invited Seminar, "Synthesis of Hybrid Materials and Direct Patterning Inorganic Nanostructures via Infiltration Synthesis".
24. KSEA Northeast Regional Conference, April 2016, Englewood NJ, Invited Talk, "Overview of Device Nanostructuring for Efficient Polymer and Hybrid Solar Cells".
23. 2016 TMS 145$^{th}$ Annual Meeting & Exhibition, Feb. 2016, Nashville TN, Invited Talk, "Inorganic Infiltration in Polymer Templates via Atomic Layer Deposition: Pathway for Synthesis of Hybrid Materials and Direct Patterning Inorganic Nanostructures"
22. New Jersey Institute of Technology, Dept. Electrical & Computer Eng., Jan. 2016, Newark NJ, Department Seminar, "Device Nanostructuring for Efficient Polymer and Hybrid Solar cells"
21. Stony Brook University, Dept. of Mater. Sci. Eng., Oct. 2015, Stony Brook NY, Department Colloquium, "Application of Nanofabriation for Energy Conversion and Electronic Devices"
20. University of Connecticut, Dept. of Mater. Sci. Eng., April 2015, Storrs CT, Department Seminar, "Direct Patterning of Arbitrary Metal Oxide Nanostructures Using Polymer Template Nanoreactors"
19. Stony Brook University, Dept. of Mater. Sci. Eng., December 2014, Stony Brook NY, Department Colloquium, "Nanostructuring Materials for Energy Applications"
18. Korea Institute of Science and Technology (KIST), Center for BioMircosystems, October 2014, Seoul, Korea, Invited Seminar, "Infiltration Synthesis of Metal Oxide Nanostructures in Polymer Templates"
17. Stony Brook University, July 2014, Stony Brook NY, Invited Lecture, "Overview of Organic Solar Cells"
16. Nanotech 2014, June 2014, National Harbor MD (Washington DC), Invited Talk, "Metal Oxide Nanopatterning via Infiltration Synthesis in Polymer Templates"
15. 2014 Advanced Energy Conference, April 2014, Albany NY, Invited Talk, "Charge Transport in Organic Polymer Solar cells"
14. Stony Brook University, Dept. of Mater. Sci. and Eng., Feb. 2014, Stony Brook NY, Invited Seminar, "Infiltration Synthesis of Metal Oxide Nanostructures in Polymer Templates"
13. 2013 US-Korea Conference, August 2013, East Rutherford NJ, Invited Talk, "Infiltration Synthesis of Metal Oxide Nanopatterns on Diblock Copolymer Templates"
12. 2012 US-Korea Conference, August 2012, Los Angeles CA, Invited Talk, "Recent Progress in Organic Bulk Heterojunction Solar Cells"
11. City University of New York, Queens College, Dept. of Chemistry and Biochemistry, March 2011, Flushing NY, Department Seminar, "Device Nanostructuring for Efficient Organic Blend Solar Cells"
10. Brookhaven National Laboratory, Center for Functional Nanomaterials, June 2010, Upton NY, Invited Seminar, "Nanostructuring for Efficient Energy Conversion Devices"
9. Temple University, Dept. of Mech. Eng., May 2010, Philadelphia PA, Invited Seminar, "Nanostructuring for Efficient Energy Conversion Devices"
8. KSEA Northeast Regional Conference, May 2010, Somerset NJ, Invited Talk, "Nanostructured Contacts for Efficient Plastic Solar Cells"
7. KAIST, Graduate School of EEWS, Nov. 2009, Taejon, Korea, Invited Seminar, "Nanostructuring for Efficient Plastic Solar Cells and Thermoelectric Devices"
6. PennEnergy Colloquium, Nov. 2009, University of Pennsylvania, Philadelphia PA, Invited Seminar, "Nanostructuring for High Performance Organic Bulk Heterojunction Solar Cells"
5. NSLS-CFN User Meeting, May 2009, BNL, Upton NY, Invited Talk, "High Performance Air-Processed Polymer-Fullerene Solar Cells Having Nanostructured Electrical Contacts"

4. Columbia University Nanocenter Summer Retreat, April 2009, Short Hills NJ, Invited Talk, "High Performance All Air-Processed Polymer-Fullerene Solar Cells"
3. Korea University, Dept. of Mater. Sci. and Eng., November 2008, Seoul, Korea, "Invited Seminar", "Structure-Property Relations in Nanoscale: Polythiophene-Methanofullerene Solar Cells and Gallium Nitride Nanowires"
2. Pohang University of Science and Technology (POSTECH), Dept. of Mater. Sci. and Eng., Nov. 2008, Pohang, Korea, Invited Seminar, "Structure-Property Relations in Nanoscale: Polythiophene-Methanofullerene Solar Cells and Gallium Nitride Nanowires"
1. Brookhaven National Laboratory, Center for Functional Nanomaterials, Jan. 2007, Upton NY, Invited Seminar, "Gallium nitride nanowires: Polar Surface Controlled Growth, Ohmic Contact Patterning by Focused Ion Beam Induced Direct Pt Deposition; Variable Range Hopping, and Resonant Electromechanical Properties"

**Research Collaborators**

C.T. Black (BNL), F. Camino (BNL), M. Cotlet (BNL), S. Darling (Argonne National Lab), Y.F. Ding (U. Colorado), C.M. Drain (Hunter College), M. Eisaman (BNL/Stony Brook U.), D. Englund (MIT), P.X. Gao (U. Conn.), R.B. Grubbs (Stony Brook U.), D. Hwang (Stony Brook U.), J.W. Hwang (Ohio State U.), K.-S. Hwang (KIST), I.N. Ivanov (ORNL), Y.W. Jung (U. Central Florida), J.Y. Kim (UT Dallas), T.J. Kim (Stony Brook U.), K Kisslinger (BNL), D.K. Ko (NJIT), T. Koga (Stony Brook U.), S. Kalinin (ORNL), J. Kymissis (Columbia U.), E.S. Lee (NJIT), J.W. Lee (KAIST), S.W. Lee (U. Conn.), H.Q. Lin (U. Buffalo), M.Z. Liu (BNL), J.H. Moon (Sogang U.), C. Nuckolls (Columbia U.), D. Nykypanchuk (BNL), B.M. Ocko (BNL), R. Pindak (BNL), M. Rafailovich (Stony Brook U.), M. Sfeir (BNL), Y. Shi (Stevens Inst. Tech.), A. Stein (BNL), D. Su (BNL), P.W. Sutter (U. Nebraska, Lincoln), A.D. Talyer (Yale U.), J. Welch (U. Albany), N.B. Wisinger (ORNL), S. Wong (BNL/Stony Brook U.), Q. Wu (BNL)

**Research Advisors**

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|---|---|
| Postdoctoral: | Charles T. Black (Brookhaven National Laboratory) |
| Ph.D.: | John (Jack) E. Fischer (University of Pennsylvania (deceased)) |
| M.S.: | Dang-Moon Wee (KAIST) |

**Teaching**

- ESM 542, Modern Electron Microscopy, Stony Brook University, Department of Materials Science and Engineering, 2017 Spring Semester

**Supervision/Dissertation Committee**

*Postdocs (2)*

- Son Hoang, 2013 – 2014, currently a Postdoctoral Fellow at University of Connecticut
- Mingfeng Wang, 2012, currently an Assistant Professor at Nanyang Tech. Univ., Singapore

*Graduate and Undergraduate Assistants (9)*

- Ashwanth Subramanian, Grad. Research Assistant (Stony Brook U., Mater. Sci. Eng. Master Student), 2017 - p
- Sulman Khan, Grad. Research Assistant (Stony Brook U., Mater. Sci. Eng. Master Student), 2017 - p
- Lei Wang, Grad. Research Assistant (Stony Brook U., Mater. Sci. Eng., Ph.D. Student), 2016 – 2017
- Brandon Yalin, Undergrad Research Assistant (Stony Brook U., Physics), 2016 – p
- Xinyi Ye, Grad. Research Assistant (Stony Brook U., Mater. Sci. Eng., Master Student), 2016 – 2017
- Chang-Yeol Cho, Visiting Ph.D. student (Sogang U.), 2012 – 2013
- James Townley, Summer Undergrad Laboratory Intern (Univ. Penn., Mater. Sci. Eng.), 2016
- Hugh Bullen, Undergrad. Research Assistant (Stony Brook U., Chemical and Molecular Eng. Program), 2012 – 2014, currently a Ph.D. student at Cornell U., Chem. Eng. (Engstrom Group)

- Jovan Kamcev, Undergrad. Research Assistant (Stony Brook U., Chemical and Molecular Eng. Program), 2011 – 2012, currently a Ph.D. student/NSF Graduate Fellow at U. of Texas, Austin, Chem. Eng. (Freeman Group)

*Visiting Faculty (1)*
- Mohammad Sohel, Visiting Faculty (Associate Professor, CUNY Hostos Community College), Summer 2014

*Dissertation Committee (6, Stony Brook Univ., Mater. Sci. Eng.)*
- Mani Sen (Tad Koga group), 2017 – p
- Hongfei Li (Miriam Rafailovich group), 2016
- Danhua Yan (Mingzhao Liu group), 2016 – p
- Xiaojun Chan (Taejin Kim group), 2015 – p
- Levent Sandogdular (Tad Koga group), 2013 – 2016
- Cheng Pan (Miriam Rafailovich group), 2010 – 2013

**Full List of Publications**: 51 refereed publications; 1 US patent & 6 US patent applications
†: Corresponding Author
https://scholar.google.com/citations?user=lODT2zIAAAAJ&hl=en

*Peer-Reviewed Articles*
51. X. Ye, J. Kestell, K. Kisslinger, M. Liu, R.B. Grubbs, J.A. Boscoboinik, **C.-Y. Nam†**, "Effects of residual solvent molecules facilitating the ZnO infiltration synthesis in a non-reactive polymer", ***Chemistry of Materials***, in press (2017)
50. V.R. Manfrinato, A. Stein, L. Zhang, **C.-Y. Nam**, K.G. Yager, E.A. Stach†, C.T. Black†, "Aberration-Corrected Electron Beam Lithography at the One Nanometer Length scale", ***Nano Letters***, in press (2017)
49. N. Jiang, L. Sendogdular, M. Sen, M.K. Endoh, T. Koga†, M. Fukuto, B. Akgun, S.K. Satija, **C.-Y. Nam†**, "Novel effects of compressed $CO_2$ molecules on structural ordering and charge transport in conjugated poly(3-hexylthiophene) thin films", ***Langmuir*** 32, 10851 (2016)
48. T. Goh, J.-S. Huang, K. Yager, M.Y. Sfeir, **C.-Y. Nam**, X. Tong, L.M. Guard, P.R. Melvin, F. Antonio, B. Bartolome, M. Lee, N. Hazar†, A.D. Taylor†, "Quaternary Organic Solar Cells Enhanced by Cocrystalline Squaraines with Power Conversion Efficiencies >10%", ***Advanced Energy Materials*** 6, 1600660 (2016)
47. H.-J. Lin, J.P. Baltrus, H. Gao, Y. Ding, **C.-Y. Nam**, P. Ohodnicki, P.-X. Gao†, "Perovskite Nanoparticle Sensitized $Ga_2O_3$ Nanorod Arrays for CO Detection at High Temperature", ***ACS Applied Materials & Interfaces*** 8, 8880 (2016)
46. Y. Huang, H. Zang, J.-S. Chen, E.A. Sutter, P.W. Sutter†, **C.-Y. Nam†**, M. Cotlet†, "Hybrid quantum dot-tin disulfide field-effect transistors with improved photocurrent and spectral responsivity", ***Applied Physics Letters*** 108, 123502 (2016)
45. S. Hoang, A. Ashraf, M.D. Eisaman, D. Nykypanchuk†, **C.-Y. Nam†**, "Enhanced Photovoltaic Performance of Ultrathin Si Solar Cells via Semiconductor Nanocrystal Sensitization: Energy Transfer vs. Optical Coupling Effects", ***Nanoscale*** 8, 5873 (2016)
44. **C.-Y. Nam†**, A. Stein, K. Kisslinger, C.T. Black, "Electrical and Structural Properties of ZnO Synthesized via Infiltration of Lithographically-Defined Polymer Templates", ***Applied Physics Letters*** 107, 103206 (2015)
43. **C.-Y. Nam†**, A. Stein, K. Kisslinger, "Direct fabrication of high aspect-ratio metal oxide nanopatterns via sequential infiltration synthesis in lithographically-defined SU-8 templates", ***Journal of Vacuum Science and Technology B*** 33, 06F201 (2015)
42. M. Liu†, **C.-Y. Nam**, L. Zhang, "Seedless Growth of Bismuth Nanowire Array via Vacuum Thermal Evaporation", ***Journal of Visualized Experiments*** 106, e53396 (2015)

41. Y. Zhong, M.T. Tuan, R. Chen, G. Purdum, P.P. Khlyabich, M. Sezen, S. Oh, H. Zhu, B. Fowler, B. Zhang, W. Wang, **C.-Y. Nam**, M.Y. Sfeir, C.T. Black, M.L. Steigerwald, Y.-L. Loo, H. Li†, S. Xiao†, F. Ng†, X.-Y. Zhu†, C. Nuckolls†, "Graphene nanoribbon as electron acceptors in high performance, bulk heterojunction solar cells", ***Nature Communications*** 6, 8242 (2015)
40. L. Li†, I. Bayn, M. Lu, **C.-Y. Nam**, T. Schroder, A. Stein, D. Englund†, "Nanolithography using transferred hard mask", ***Scientific Reports*** 5, 7802 (2015)
39. H. Hlaing†, C.-H., Kim, F. Carta, **C.-Y, Nam**, R. Barton, N. Petrone, J. Hone, I. Kymissis†, "Low-voltage organic electronics based on gate-tunable injection barrier in vertical graphene-organic semiconductor heterostructure", ***Nano Letters*** 15, 69 (2015)
38. X. Lu†, H. Hlaing, **C.-Y. Nam**, K. Yager, C.T. Black, B.M. Ocko†, "Orientation and Performance of nanoimprinted polymer-based blend thin film solar cells", ***Chemistry of Materials*** 27, 60 (2015)
37. **C.-Y. Nam†**, "Ambient air processing causes light soaking effects in inverted organic solar cells having conjugated polyelectrolyte electron transfer layer", ***Journal of Physical Chemistry C*** 118, 27219 (2014)
36. Y. Zhong, M.T. Trinh, R. Chen, W. Wang, B. Kumar, **C.-Y. Nam**, M.Y. Sfeir, C.T. Black, M.L. Steigerwald, S.X. Xiao†, F. Ng†, X.Y. Zhu†, C. Nuckolls†, "Efficient organic solar cells with helical perylene diimide electron acceptors", ***Journal of the American Chemical Society*** 136, 15215 (2014)
35. M. Liu†, J. Tao, **C.-Y. Nam**, K. Kisslinger, L. Zhang, D. Su, "Surface-energy induced formation of single crystalline bismuth nanowires over vanadium thin film at room temperature", ***Nano Letters*** 14, 5630 (2014)
34. Y.S. Park, Q. Wu, **C.-Y. Nam**, R.B. Grubb†, "Polymerization of tellurophene derivatives via microwave-assisted palladium-catalyzed ipso-arylative polymerization", ***Angewandte Chemie International Edition*** 53, 10691 (2014)
33. Y.S. Park, T.S. Kale, **C.-Y. Nam**, D. Choi, R.B. Grubbs†, "Effects of heteroatom substitution in conjugated heterocyclic compounds on photovoltaic performance: from sulfur to tellurium", ***Chemical Communications*** 50, 7964 (2014)
32. F.E. Camino, **C.-Y. Nam**, Y.T. Pang, J. Hoy, M.D. Eisaman, C.T. Black, M.Y. Sfeir†, "Characterization of plasmonic hole arrays as transparent electrical contacts for organic photovoltaics using high brightness fourier transform methods", ***Journal of Modern Optics*** 61, 1735 (2014)
31. M. Liu†, **C.-Y. Nam**, C. T. Black, J. Kamcev, L. Zhang, "Enhancing water splitting activity and chemical stability of zinc oxide nanowire photoanodes with ultrathin titania shells", ***Journal of Physical Chemistry C*** 117, 133396 (2013)
30. J. Li, X. Chen, W. Xu, **C.-Y. Nam†**, Y. Shi†, "$TiO_2$ nanofiber solid state dye sensitized solar cell with thin tio2 hole blocking layer prepared by atomic layer deposition", ***Thin Solid Films*** 536, 275 (2013)
29. J. Kamcev, D. S. Germack, D. Nykypanchuk, R. B. Grubbs, **C.-Y. Nam†**, C. T. Black†, "Chemically enhancing block copolymers for block-selective synthesis of self-assembled metal oxide nanostructures", ***ACS Nano*** 7, 339 (2013)
28. M. J. Jurow, B. A. Brian, C. Pabon, E. DiMasi†, **C.-Y. Nam**, C. T. Black, C. M. Drain†, "Controlling morphology and molecular packing of alkane substituted phthalocyanine blend bulk heterojunction solar cells", ***Journal of Material Chemistry A*** 1, 1557 (2013)
27. **C.-Y. Nam†**, "Facile determination of bulk charge carrier concentration in organic semiconductors: Out-of-plane hopping transport characteristics in semi-crystalline polythiophene", ***Journal of Physical Chemistry C*** 116, 23951 (2012)
26. H. Hlaing, X. Lu, **C.-Y. Nam**, B. M. Ocko†, "Water-vapor-assisted nanoimprinting of PEDOT:PSS thin film", ***Small*** 8, 3443 (2012),
25. D. E. Johnston, K. G. Yager, **C.-Y. Nam**, B. M. Ocko, C. T. Black†, "One-volt operation of high-current vertical channel polymer semiconductor field-effect transistors", ***Nano Letters*** 12, 4148 (2012)
24. J. E. Allen, K.G. Yager, H. Hlaing, **C.-Y. Nam**, B. M. Ocko, C. T. Black†, "Implementing nanometer-scale confinement in organic semiconductor bulk heterojunction solar cells", ***Journal of Photonics for Energy*** 2, 021008 (2012)

23. **C.-Y. Nam**†, Y. Qin, Y. S. Park, H. Hliang, X. Lu, B. M. Ocko, C. T. Black, R. B. Grubbs†, "Photocrosslinkable azide-functionalized polythiophene for thermally stable bulk heterojunction solar cells", ***Macromolecules*** 45, 2338 (2012)
22. **C.-Y. Nam**†, Q. Wu, D. Su, C.-Y. Chiu, N. J. Tremblay, C. Nuckolls, C. T. Black, "Nanostructured electrodes for organic bulk heterojunction solar cells: model study using carbon nanotube dispersed polythiophene-fullerene blend devices", ***Journal of Applied Physics*** 110, 604307 (2011)
21. J. E. Allen, K. G. Yager, H. Hlaing, **C.-Y. Nam**, B. M. Ocko, C. T. Black†, "Enhanced charge collection in confined bulk heterojunction organic solar cells", ***Applied Physics Letters*** 99, 163301 (2011)
20. W. Han†, Y. Zhang, **C.-Y. Nam**, C. T. Black, E. E. Mendez, "Growth and electronic properties of GaN/ZnO solid solution nanowires", ***Applied Physics Letters*** 97, 083108 (2010)
19. A. Varotto, **C.-Y. Nam**, I. Radivojevic, J. Tome, J. A. S. Cavaleiro , C. T. Black†, C. M. Drain†, "Phthalocyanine blends improve bulk heterojunction solar cells", ***Journal of the American Chemical Society*** 132, 2552 (2010)
18. I. Radivojevic, M.S. Sfeir, **C.-Y. Nam**, B.P. Burton-Pye, A. Falber, C.T. Black, C.M. Drain†, "Hafnium (IV) and zirconium (IV) porphyrinoid diacetate complexes as new dyes for solar cells ", ***Photovoltaic Specialists Conference (PVSC), 2010 35th IEEE***, 3280 (2010)
17. **C.-Y. Nam**†, D. Su, C. T. Black, "High-performance all air-processed polymer-fullerene bulk heterojunction solar cells", ***Advanced Functional Materials*** 19, 3552 (2009)
16. R. Gearba†, **C.-Y. Nam**, R. Pindak, C. T. Black, "Thermal crosslinking of organic semiconducting polythiophene improves transverse hole conductivity", ***Applied Physics Letters*** 95, 173397 (2009)
15. C. Santulli, W. Q. Xu, J. B. Parise, L. S. Wu, M. C. Aaronson, F. Zhang, **C.-Y. Nam**, C. T. Black, A. L. Tiano, S. S. Wong†, "Synthesis and characterization of $V_2O_3$ nanorods", ***Physical Chemistry Chemical Physics*** 11, 3718 (2009)

*Before BNL*

14. **C.-Y. Nam**†, D. Tham, J.E. Fischer, "Self-branching in GaN nanowires induced by a novel vapor-liquid-solid mechanism", ***Materials Research Society Symposium Proceeding*** 1058, JJ04.03 (2008)
13. C. Guthy, **C.-Y. Nam**, J. E. Fischer†, "Unusually low thermal conductivity of gallium nitride nanowires", ***Journal of Applied Physics*** 103, 064319 (2008)
12. **C.-Y. Nam**, P. Jaroenapibal, D. Tham, D. E. Luzzi, S. Evoy†, J. E. Fischer†, "Diameter-dependent electromechanical properties of GaN nanowire", ***Nano Letters*** 6, 153 (2006)
11. **C.-Y. Nam**†, D. Tham, P. Jaroenapibala, J. Y. Kim, D. E. Luzzi, S. Evoy, J. E. Fischer, "Gallium nitride nanowires: Polar surface controlled growth, ohmic contact patterning by focused ion beam induced direct pt deposition and disorder effects; variable range hopping, and resonant electromechanical properties", ***SPIE Proceeding*** 6370, 63701F (2006)
10. D. Tham, **C.-Y. Nam**, J. E. Fischer†, "Microstructure and composition of focused ion beam-deposited pt contacts to GaN nanowires", ***Advanced Materials*** 18, 290 (2006)
9. D. Tham, **C.-Y. Nam**, J. E. Fischer†, "Defects in GaN nanowires", ***Advanced Functional Materials*** 16, 1197 (2006)
8. **C.-Y. Nam**, D. Tham, J. E. Fischer†, "Disorder effects in focused ion beam deposited pt contacts to GaN nanowires", ***Nano Letters*** 5, 2029 (2005)
7. D. Tham, **C.-Y. Nam**, K. Byon, J. Y. Kim, J. E. Fischer†, "Applications of electron microscopy to the characterization of semiconductor nanowires", ***Applied Physics A*** 85, 227 (2006)
6. **C.-Y. Nam**, J. Y. Kim, J. E. Fischer†, "Focused ion beam platinum nanopatterning for GaN nanowires: ohmic contacts and patterned growth", ***Applied Physics Letters*** 86, 193112 (2005)
5. **C.-Y. Nam**†, D. Tham, J. E. Fischer, "Effect of the polar surface on GaN nanostructure morphology and growth orientation", ***Materials Research Society Symposium Proceeding*** 831, E12.8.1 (2005)
4. **C.-Y. Nam**, D. Tham, J. E. Fischer†, "Effect of the polar surface on GaN nanostructure morphology and growth orientation", ***Applied Physics Letters*** 85, 5676, (2004)
3. **C.-Y. Nam**, J. H. Han†, Y. H. Chung, M. C. Shin, "Effect of precipitates on microstructural evolution of 7050 Al alloy sheet during equal channel angular rolling (ECAR)", ***Materials Science and***

***Engineering A*** 347, 253 (2003)

2. **C.-Y. Nam**†, M. H. Oh, K. S. Kumar, D. M. Wee, "Effect of nitrogen on the mean lamellar thickness of fully lamellar TiAl alloys", ***Scripta Materialia*** 46, 441 (2002)
1. **C.-Y. Nam**, D. M. Wee, P. Wang, K. S. Kumar†, "Microstructure and toughness of nitrogen-doped TiAl alloys", ***Intermetallics*** 10, 113 (2002)

*Journal Articles under Review or in Preparation*

8. **C.-Y. Nam**†, A. Stein, "Ultrathin polycrystalline ZnO nanowire array photodetectors with photoelectrochemical-thermionic behavior", under review
7. J. Kestell†, K. Mudiyanselage, X. Ye, **C.-Y. Nam**, D.J. Stacchiola, J.T. Sadowski, J.A. Boscoboinik†, "Stand-Alone Polarization-Modulation Infrared Reflection Absorption Spectroscopy Instrument Optimized for the Study of Catalytic Processes at Elevated Pressures", under review
6. H. Li, Z. Yang, C. Pan, S.K. Satija, D. Xu, D. Gersappe, **C.-Y. Nam**†, M.H. Rafailovich†, "Enhanced Material Photovoltaic Performance of Polymer:Fullerene Bulk Heterojunction Phase in Ternary Polymer Solar Cells by the Self-Assembly of Non-Photoactive Tertiary Polymer Component", under review
5. H.-J. Lin, H. Gao, X. Lu, **C.-Y. Nam**, P.-X. Gao†, "Perovskite-Nanoparticle-Sensitized beta-$Ga_2O_3$ Nanorod Arrays for Highly Selective and Sensitive $NO_2$ Detection over $O_2$ at High Temperature", under review
4. W. Tang, X. Lu, S. Du, S. Hoang, S. Wang, **C.-Y. Nam**†, P.-X. Gao†, "Pt-Nanoparticle-Supported $CeO_2$ Nanoflake Array Monolithic Catalysts for Low Temperature Catalytic Oxidation", in preparation
3. K. Dusoe, X. Ye, K. Kisslinger, A. Stein, **C.-Y. Nam**†, S.-W. Lee†, "Ultra-high strain energy storage in $AlO_x$-infiltrated polymer nanopillars", in preparation
2. D. Yan, L. Wang, K. Kisslinger, M. Liu, **C.-Y. Nam**†, "Ultrathin metal oxide passivation layer enhances the water spitting activity and chemical stability of organic semiconductor photoanodes", in preparation
1. **C.-Y. Nam**†, G. Doerk, N. Balke, S. Kalinin, "Piezoresponsive ZnO-infiltrated self-assembled diblock copolymer thin films", in preparation

*Ph.D. Dissertation*

C.-Y. Nam, "Gallium nitride nanowires: Synthesis, resonant electromechanical properties, ion beam disorder effect on contact conduction, and heterojunction fabrication", Department of Materials Science and Engineering, University of Pennsylvania (2007)

*M.S. Thesis*

C.-Y. Nam, "Microstructure and Toughness of Nitrogen-doped TiAl alloys", Department of Materials Science and Engineering, KAIST (2001)

*Patents*

7. C.-Y. Nam, J. Kamcev, C. T. Black, R. B. Grubbs, "Patterning Area by Selective Oxidation", U.S. Patent US 9,221,957
6. M. Liu, C.-Y. Nam, "Nanowires and Methods of Forming", U.S. Patent Application US20150325649
5. M. Liu, C.-Y. Nam, C. T. Black, "Chemically Passivated Zinc Oxide Photoelectrode for Photoelectrochemical Water Splitting", U.S. Patent Application US 20150122639 A1
4. D.E. Johnston, J.E. Allen, E. Baker, C.T. Black, C.-Y. Nam, "Transfer Chamber for Air-Sensitive Sample Processing", U.S. Patent Application US 20140096483 A1
3. D.E. Johnston, J.E. Allen, C.T. Black, C.-Y. Nam, "Interdigitated Electrical Contacts for Low Electron Mobility Semiconductors", U.S. Patent Application US 20140216539 A1
2. C.-Y. Nam, C.T. Black, "Inorganic Nanocrystal Bulk Heterojunction", U.S. Patent Application US 20100276731 A1

1. C.-Y. Nam, C.T. Black, I.R. Gearba, J.E. Allen, "Nanostructured Pillar Electrodes", U.S. Patent Application US 20110248315 A1