

SANG-YONG JU

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- HIGHLIGHTS**
- Leading expert on separation and purification of carbon-based nanomaterials
 - Development of carbon nanotube with highest quantum yield
 - Interfaced experience in between chemistry/ materials science over 10 years
 - Simultaneous commands of optical/spectroscopic microscopies including Raman, Rayleigh and photoluminescence
 - Atomistic molecular mechanics and dynamics simulation skills of nanomaterials

- EDUCATION**
- Ph.D., Institute of Materials Science, University of Connecticut, Storrs CT, 2008
Thesis title: "Flavin-derived self-organization and chirality separation of single-walled carbon nanotubes", Adviser: Professor Fotios Papadimitrakopoulos
 - M.S., Polymer Chemistry, Hanyang University, Seoul, South Korea, 2000
Dissertation title: "Synthesis of the polymer having a 2-trimethylsilyl nortricyclene unit for low dielectric application", Adviser: Professor Dong Hack Suh
 - B.S., Industrial Chemistry, Hanyang University, Seoul, South Korea, 1998

- RESEARCH EXPERIENCE**
- 2011.01–present*
Assistant Professor, Yonsei University
- High quality graphene synthesis using chemical vapor deposition.
 - Monodisperse carbon materials preparation via purification and synthesis
 - High throughput optical platform for carbon nanomaterials.
- 2008.12–2011.1*
Post doctoral associate, Cornell University, Mentor: Professor Jiwoong Park
- Device fabrication of graphene with semiconducting properties and high on/off ratio.
 - Simultaneous optical measurements of carbon nanotubes and graphene.
- 2002.9–2008.12*
Research Assistant, University of Connecticut
- Developed single-walled carbon nanotube separation according to chirality.
 - Modeling of highest quantum yield carbon nanotube for NIR and optoelectronic applications.
 - Functionalization of biological entities onto carbon nanotubes for biosensor.
- 2000.3–2002.7*
Research Scientist, KIST, Seoul, Korea
- Studied various photopolymerizable lipid for calorimetric biosensor application.
 - Studied photoswitchable dyes/polymers for data storage media.

- AFFILIATIONS AND HONORS**
- Member of American Chemical Society (ACS), American Physical Society (APS)
 - Reviewer duty of the leading nanoscience journals: Nano Letters, ACS Nano and Nanotechnology

PUBLICATIONS *i) Peer-reviewed journals (underline indicates advisor)*

17. Abanulo C. D.*, Badalucco A. C., Gascón A. J., Dobrynin, A. V., Yang Y., Hagan, M. F., Hu B., **Ju, S.-Y.**, Doll, J., and Papadimitrakopoulos, F. "Carbon Nanotube Superhelical Twisting via Flavin Quasi-Epitaxial Mismatch", *submitted*.
16. **Ju, S. -Y.***, Abanulo C. D.*, Badalucco A. C., Gascón A. J., and Papadimitrakopoulos, F., "Handedness Enantioselection of Carbon Nanotubes using Helical Assemblies of Flavin Mononucleotide", *J. Am. Chem. Soc.*, 134 (32), 13196-13199 (2012). * Equally contributed to this work. Featured in [RSC Chemistryworld](#).
15. Havener, R. W.,* **Ju, S. -Y.***, Brown, L. , Wang Z., Wojcik, M., Ruiz-Vargas C. and Park J. "High-Throughput Graphene Imaging on Arbitrary Substrates with Widefield Raman Spectroscopy", *ACS Nano*, 6(1), 373- 380 (2012). * Equally contributed to this work
14. Chen, S., Brown L., Levendorf M., Cai W., **Ju, S.-Y.**, Edgeworth J., Li X., Magnuson, C. W. Velamakanni A., Piner R. D.,Kang J., Park J., and Ruoff R.S. "Oxidation Resistance of Graphene-Coated Cu and Cu/Ni Alloy", *ACS Nano*, 5(2), 1321-1327 (2011).
13. Joh, D. Y., Herman, L. H. Kinder J., **Ju, S.-Y.**, , Segal, M. A., Johnson, J. N., Chan, G. K. L., and Park J., "Single-Walled Carbon Nanotubes as Excitonic Optical Wires", *Nature Nanotech.*, 6, 51-56 (2011)
12. Joh, D. Y., Herman, L. H., **Ju, S.-Y.**, Kinder J., Segal, M. A., Johnson, J. N., Chan, G. K. L., and Park J., "On-Chip Rayleigh Imaging and Spectroscopy of Carbon Nanotubes", *Nano Lett.*, 11(1), 1-7 (2010). [Cover in Nano letters](#) (Jan.2011).
11. **Ju, S.-Y.**, Utz, M., Papadimitrakopoulos, F., "Enrichment Mechanism of Semiconducting Single-walled Carbon Nanotubes by Surfactant Amines", *J. Am. Chem. Soc.*, 131 (19), 6775–6784 (2009, article).
10. **Ju, S.-Y.**, Kopcha, W., Papadimitrakopoulos, F., "Brightly Fluorescent Single-Walled Carbon Nanotubes via an Oxygen-Excluding Surfactant Organization", *Science* 323, 1319-1323 (2009, article). Featured in [Nature Photonics](#).
9. **Ju, S.-Y.**, Doll, J., Sharma. I., Papadimitrakopoulos, F., "Selection of Carbon Nanotubes with Specific Chiralities using Helical Assemblies of Flavin Mononucleotide", *Nature Nanotech*, 3, 356-362 (2008, article). Featured in [Hartford Courant](#).
8. Wei, H., Kim, S. N., Zhao, M., **Ju, S.-Y.**, Huey, B., Marcus, H. L., Papadimitrakopoulos, F., "Control of Length and Spatial Functionality of Single-Wall Carbon Nanotube AFM Nanoprobes", *Chem. Mater.* 20, 2793-2801 (2008, article).
7. **Ju, S.-Y.** and Papadimitrakopoulos, F., "Synthesis and Redox Behavior of Flavin Mononucleotide-Functionalized Single-Walled Carbon Nanotubes", *J. Am. Chem. Soc.*, 130, 655-664 (2008, article).
6. Papadimitrakopoulos, F. and **Ju, S.-Y.**, "Purity rolled up in a tube", *Nature* 450, 486-487 (2007, editorial).
5. **Ju, S.-Y.**, Kwon, D.-I., Min, S.-J.; Ahn, K.-D.; Park, K. H.; Kim, J.-M., "Synthesis and photochromism of polymer-bound phenoxyquinone derivatives", *J. Photochem. Photobiol. A* 160, 151-157 (2003, article).
4. Kim, J. -M.; Shin, H. Y.; Park, K. H.; Kim, T. H.; **Ju, S.-Y.**; Han, D. K.; Ahn, K. D., "Synthesis of Norbornene-Derived Polymers Having Pendant Phenoxyquinones for Photochromism", *Macromolecules* 34, 4291-4293 (2001, ASAP).
3. Suh, D. H.; **Ju, S.-Y.**; Park, S. H.; Lee, J. W., "Synthesis and Properties of Novel Aromatic Polyamides having Pendent *N, N'*-Phenylimide Groups", *J. Macromol. Sci. Part A-Pure Appl. Chem.*, A38, 751-760 (2001, article).
2. Park, S. H.; Lee, J. W.; Suh, D. H.; **Ju, S.-Y.**, "Synthesis and Characteristics of Novel Polyamides having Pendent *N*-Phenylimide Groups", *J. Macromol. Sci. Part A-Pure Appl. Chem.*, A38, 513-525 (2001, article).
1. **Ju, S.-Y.**; Ahn, K.-D.; Han, D. K.; Suh, D. H.; Kim, J.-M., "Photochromism of A Styrene-Derived Polymer Having Pendant Phenoxyanthraquinones", *J. Photoscience*, 7, 131-133 (2000, article).

ii) Patent

2. Park J, **Ju, S.-Y.**, and Havener R. , “Widefield Raman Spectroscopy Imaging Apparatus, Method and Applications”, US Patent Application number 61/607,039, Publication Mar. 6th (2012).
1. Papadimitrakopoulos, F. and **Ju, S.-Y.** , “Methods for separating Carbon Nanotubes”, US Patent Publication Number 20100044230 (Application number 12,348,631) Publication Feb. 25th, (2010).

iii) Refereed conference papers

4. **Ju, S.-Y.**; Papadimitrakopoulos*, F., “Diameter Separation of Carbon Nanotubes using Helical Assemblies of Flavin Mononucleotide”, *Polym. Prepr.* (2009, **invited**).
3. **Ju, S.-Y.***; Utz, M.; Luo, Z.; Papadimitrakopoulos, F., *Polym. Prepr.* 46, 209-210 (2005).
2. Luo, Z.*; **Ju, S.-Y.**; Li, R.; Kim, S. N.; Papadimitrakopoulos, F., *Polym. Prepr.* 46, 219 (2005).
1. Kim, S. N.*; Luo, Z.; **Ju, S.-Y.**; Li, R.; Papadimitrakopoulos, F., *Polym. Prepr.* 46, 220 (2005).

iv) Presentation

23. **Ju, S.-Y.**, “Accurate carbon nanotubes”, KIST, Seoul, Korea, Dec. 12, 2011 .
22. **Ju, S.-Y.**, “Defined carbon nanotubes”, POSTECH, Pohang, Korea, Nov. 23, 2011 .
21. **Ju, S.-Y.**, “Accurate carbon nanotubes”, Korean Chemical Society, Daejun, Korea, Sep 30, 2011 .
20. **Ju, S.-Y.**, “Accurate carbon nanotubes”, KBSI, Daejun, Korea, July 15, 2011 .
19. **Ju, S.-Y.**, “Control over Edge and Width of Graphene Nanoribbon using Self-Assembled Monolayer”, KRICT, Daejun, Korea, Feb 12, 2011.
18. **Ju, S.-Y.** KAIST Graduate School of Nanotechnology, Deajun, Korea, April 14-19, 2010 (**invited**)
17. **Ju, S.-Y.**; Park, J., APS March Meeting, Portland, OR, U.S., Mar 14-19, 2010 (oral)
16. **Ju, S.-Y.**; Park, J., Clusters, Nanocrystals & Nanostructures, Gordon Research Conference, Mt. Holyoke College, MA, U.S., July 19-24, 2009 (poster)
15. **Ju, S.-Y.**; Papadimitrakopoulos, F.* , Abstracts of Papers, 237th ACS National Meeting, Salt Lake City, UT, U.S., March 22-26, 2009 (**invited**).
14. Abanulo, D. C.; **Ju, S.-Y.**; Papadimitrakopoulos, F., 2008 MRS Fall Meeting, Boston, MA, U.S., Dec 2, 2008, JJ10.8 (poster)
13. Sharma, I., **Ju, S.-Y.**; Papadimitrakopoulos, F., 2008 MRS Fall Meeting, Boston, MA, U.S., Dec 3, 2008, JJ20.7 (poster)
12. **Ju, S.-Y.**; Doll, J.; Sharma. I.; Papadimitrakopoulos, F., Abstracts of Papers, 236th ACS National Meeting, Philadelphia, PA, U.S., August 17-21, 2008, 44. (oral)
11. **Ju, S.-Y.**; Doll, J.; Sharma. I.; Papadimitrakopoulos, F., Abstracts of Papers, 82nd ACS Colloid & Surface Science Symposium, Raleigh, NC, U.S., June 15-18, 2008, 180. (poster)
10. **Ju, S.-Y.**; Papadimitrakopoulos, F., Abstracts of Papers, 233rd ACS National Meeting, Chicago, IL, U.S., March 25-29, 2007, COLL-263. (poster)
9. Wei, H., Kim, S. N., Zhao, M., **Ju, S.-Y.**, Huey, B., Marcus, H. L., Papadimitrakopoulos, F.,; 2006 MRS Fall Meeting, Boston, MA, U.S., Dec 1, 2006, Q10.42. (poster)
8. Papadimitrakopoulos, F.; Luo, Z.; Kim, S. N.; **Ju, S.-Y.**; 2005 MRS Fall Meeting, Boston, MA, U.S., 2005, D12.9. (poster)
7. **Ju, S.-Y.**; Utz, M.; Luo, Z.; Papadimitrakopoulos, F., Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, U.S., March 13-17, 2005, POLY-119. (oral)
6. Luo, Z.; **Ju, S.-Y.**; Kim, S. N.; Li, R.; Papadimitrakopoulos, F., Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, U.S., March 13-17, 2005, POLY-116. (poster)
5. Kim, S. N.; Luo, Z.; Papadimitrakopoulos, F.; **Ju, S.-Y.**; Li, R., Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, U.S., March 13-17, 2005, POLY-118. (poster)
4. Papadimitrakopoulos, F.; Luo, Z.; Kim, S. N.; **Ju, S.-Y.**; Li, R.; Vaddiraju, S., Abstracts of

- Papers, 229th ACS National Meeting, San Diego, CA, U.S., March 13-17, 2005, POLY-244. (oral)
3. **Ju, S.-Y.**; Utz, M.; Papadimitrakopoulos, F., Abstracts of Papers, 2004 MRS Fall Meeting, Boston, MA, United States, 2004, HH3.18. (poster)
 2. Papadimitrakopoulos, F., Luo, Z., Kim, S.N., **Ju, S.-Y.**, Li, R., Mathai, M., Vaddiraju, S., Biswas, K., Samsonidze, G.G., Chou, S. G., Brar, V. W., Dresselhaus, G., **Dresselhaus M.S.**, Abstracts of Papers, 2004 MRS Fall Meeting, Boston, MA, U.S., 2004, HH4.5. (oral)
 1. **Ju, S.-Y.**; Utz, M.; Papadimitrakopoulos, F., Abstracts of Papers, 227th ACS National Meeting, Anaheim, CA, U.S., March 28-April 1, 2004, IEC-220. (oral).