

Piljae Joo

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Education

- Department of Organic Materials and Fiber Engineering, Soongsil University, Korea, **BS**, 2011
- Interdisciplinary School of Green Energy, Ulsan National Institute Science and Technology (UNIST), Korea, **MS**, 2013
- Department of Polymer Engineering, The University of Akron, United States, **Ph.D.**, 2016 -

Experiences

- **Military Duty:** Republic of Korea Air Force, Korea, 2005 - 2007
- **Research Assistant,** Interdisciplinary School of Green Energy, Ulsan National Institute Science and Technology (UNIST), Korea, 2011 - 2013

Advisor: Prof. Byeong-Su Kim

Research Focus:

- Layer-by-layer assembly of 2-dimensional materials(reduced graphene oxide, transition metal dichalcogenides) with polymers on 2 or 3-dimensional templates
- Organic synthesis for sensor applications (Spiropyran, PNIPAAm)

- **Associate Research Engineer,** Advanced Materials Research Development, LS-Nikko Copper Inc. (Previous LG Metal), Korea 2013 - 2014

Research Focus: Conductive pastes for photovoltaic and smart phone bus-bar application by using screen and gravure offset printing.

- **Researcher,** Department of Chemistry, Ulsan National Institute Science and Technology (UNIST), Korea, 2015

Research Focus: Semiconductive polymeric pastes for supercapacitors

- **Research Assistant,** Department of Polymer Engineering, The University of Akron, United States, 2016 -

Advisor: Professor Eric J. Amis

Research Focus: High-throughput analysis of additive manufacturing (3D printing) objects via digital image correlation

Publications

1st Author († Equal contribution)

1. Hyunmin Hwang†, **Piljae Joo†**, Moon Sung Kang, Gukmoon Ahn, Joong Tark Han, Byeong-Su Kim*, and Jeong-Ho Cho* "Highly Tunable Charge Transport in Layer-by-Layer Assembled Graphene Transistors" *ACS Nano* **2012**, 6, 2432
2. **Piljae Joo†**, Beom Joon Kim†, Eun Kyung Jeon, Jeong-Ho Cho* and Byeong-Su Kim* "Optical switching of Dirac point in graphene multilayer field-effect transistors functionalized with spiropyran" *Chem. Comm.* **2012**, 48, 10978
3. **Piljae Joo†**, Kiyoung Jo†, Gwanghyun Ahn, Damien Voiry, Hu Young Jeong, Sunmin Ryu, Manish Chhowalla* and Byeong-Su Kim* "Functional Polyelectrolyte Nanospaced MoS₂ Multilayers for Enhanced Photoluminescence" *Nano Lett.* **2014**, 14, 6456

Co-Author

1. Jinkee Hong, Jung Yeon Han, Hyunsik Yoon, **Piljae Joo**, Taemin Lee, Eunyong Seo, Kookheon Char,* and Byeong-Su Kim* "Carbon-based layer-by-layer nanostructures: from films to hollow capsules" *Nanoscale* **2011**, 3, 4515
2. Seong-Min Kim, **Piljae Joo**, Gukmoon Ahn, In Ha Cho, Dae Hwan Kim, Woo Keun Song, Byeong-Su Kim* and Myung-Han Yoon* "Transparent conducting films based on reduced graphene oxide multilayers for biocompatible neural interfaces" *J. Biomed. Nanotechnol.* **2013**, 9, 1
3. Hyosung Choi, Seo-Jin Ko, Yuri Choi, **Piljae Joo**, Taehyo Kim, Bo Ram Lee, Jae-Woo Jung, Hee Joo Choi, Myoungsik Cha, Jong-Ryul Jeong, In-Wook Hwang, Myoung Hoon Song, Byeong-Su Kim* and Jin Young Kim* "Versatile Surface Plasmon Resonance of Carbon-Dot-Supported Silver Nanoparticles in Polymer Optoelectronic Devices" *Nature Photon.* **2013**, 7, 732
4. Hojeong Yu, **Piljae Joo**, Dajeong Lee, Byeong-Su Kim and Jun Hak Oh* "Photoinduced Charge-Carrier Dynamics of Phototransistors Based on Perylene Diimide/Reduced Graphene Oxide Core/Shell p-n Junction Nanowires" *Adv. Opt. Mater.* **2015**, 3, 241