

Jiwoo Yu

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EDUCATION

Georgia Institute of Technology PhD, Materials Science and Engineering <i>Advisor: Prof. Zhiqun Lin</i>	2016 – Present Atlanta, Ga
Seoul National University MS, Materials Science and Engineering <i>Class of 2016; Advisor: Prof. Young-chang Joo</i>	2014 – 2016 Seoul, Republic of Korea
University of Illinois at Urban-Champaign BS, Materials Science and Engineering <i>Class of 2014; Focus: Electronics and Semiconductors</i>	2010 – 2014 Urbana-Champaign, IL
POSTECH Study Abroad Program <i>Full-time student on academic courses and research for a semester</i>	Spring 2012 Pohang, Republic of Korea

RESEARCH INTERESTS

My research interests include development and fundamental understanding of nanostructuring, nanopatterning, polymers, magnetic materials, materials for energy harvest and storage, and materials for biomedical applications.

RESEARCH EXPERIENCE

M.S. at Seoul National University	2014 – 2016 Seoul, Republic of Korea
Topic 1: Ni-Co/C hybrid electrospun nanofibers for electromagnetic interference (EMI) shielding application <ul style="list-style-type: none">Increased permeability while minimizing coercivity of the nanofibers to optimize the EMI-shielding property.Multifunctional as they perform heat-conducting and superhydrophobic properties.	
Topic 2: The relationship between magnetic properties and magnetic domains of nanoparticles in nanofibers <ul style="list-style-type: none">Development of novel fabrication method for Ni/C nanofibers to control Ni nanoparticles in various size and domain.Further applications of the optimized transition metal/C nanofibers in biomedical and catalytic uses.	
Undergraduate Research Assistant in Rogers Group, UIUC	2012 – 2014 Urbana-Champaign, IL
Topic: Epidermal electronics for sensors <ul style="list-style-type: none">Flexible and stretchable circuit of 20 μm thickness that performs perfect contact with skinPrecise detection of skin movement, temperature, and signals from nerves in the human body	
Summer Intern (Advanced Institutes of Convergence Technology), Ntrium Inc.	Summer 2013 Suwon, Republic of Korea
Topic: Polymer-metal core/shell conductive microspheres as a material for anisotropic conductive film (ACF) <ul style="list-style-type: none">Achieved successful progress in the start-up company with only other researcher.	
Undergraduate Senior Research	Spring 2014 Urbana-Champaign, IL
Topic: Removal of arsenic from groundwater to below 10 ppb arsenic level using photocatalyst	

Topic: Development of hydrophobic glass for smartphone screens

TECHNICAL SKILLS

Laboratory Skills

- **Fabrication Processing:** Photolithography, electrospinning, ultrasonic treatments, and centrifugal separator; E-beam deposition, sputter coating, thermal evaporator.
- **Analytical Operations:** FE-SEM (SU 70, SU 80), SEM (JSM 6360), Analytical TEM (F20), TEM (JEM-200CX), XRD (D-8 Advance), EDX, some hands-on experience with EELS, DSC, NMR, and IR Spectroscopy.

Computer/Programming Skills

- Proficient with statistical analysis using Excel, OriginLab, and MATLAB; designing software ProEngineer, photoshop, and PPT; Some experience with C and JAVA programming.

Language Skills

- Fluent in Korean and English; elementary proficiency in Spanish.

PUBLICATIONS

- **J. Yu**, D.H. Nam, Y.J. Lee and Y.C. Joo. Electrospun Magnetic Nanofiber as Multifunctional Flexible EMI-Shielding Layer and its Optimization on the Effectiveness. *J. Microelectron. Package. Soc.*
- **J. Yu**, D.H. Nam, S. Na, J.C. Lee and Y.C. Joo. One-step fabrication of Ni-Co bimetallic nanocubes in carbon electrospun nanofibers for enhanced magnetic properties. Manuscript in preparation.
- B. Xu, A. Akhtar, Y. Liu, H. Chen, W.H. Yeo, S.I. Park, B. Boyce, H. Kim, **J. Yu**, H.Y. Lai, S. Jung, Y. Zhou, J. Kim, S. Cho, Y. Huang, T. Bretl, J. A. Rogers. 2015. An Epidermal Stimulation and Sensing Platform for Sensorimotor Prosthetic Control, Management of Lower Back Exertion, and Electrical Muscle Activation. *Adv. Mater.*

CONFERENCE AND PRESENTATION PARTICIPATION

- Presented work in 2016 MRS spring meeting- oral presentation
Topic: Morphology and crystallinity control of transition metal/carbon hybrid electrospun nanofibers and the magnetic properties.
- Awarded for poster presentation in KMEP 2016 Fall.
Topic: EMI-shielding of electrospun magnetic nanofibers and the effectiveness optimization by controlling size, shape, and crystallinity of the nanomagnets.
- Presented reports multiple times for a company (LS-Nikko) sponsored project from 2014 to 2016.
Topic: Transition metal/carbon nanofibers and the application to EMI-Shielding and heat-conducting materials.
- Presented work in Undergraduate Symposium Fall 2013 at UIUC- oral presentation
Topic: Supersensitive silicon-based temperature sensor.
- Will present work in RBI poster session at March 2017 Executive Conference.
Topic: Low-cost, large-scale manufacturing of cellulose/nanoparticle microspheres for water treatment

TEACHING EXPERIENCE

- Teaching assistant (TA) for a senior design course (445.408A) at SNU

UNIVERSITY SERVICE

- Worked as a staff in 2015 Advanced Metallization Conference (ADMETA) at SNU.
- As a study abroad returnee, volunteered to present experience in 2012 Eng. Study Abroad Fair.

COMMUNICATION AND INTERNATIONAL EXPERIENCE

- Excellent social skills developed through studying abroad to the United States.
- Forming multicultural friendships on campus.
- Extensive travel to New Zealand, Thailand, Malaysia, and various parts in the United States.