

## *Curriculum Vitae*

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Assistant Professor

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### **Education**

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<b>KAIST</b>	Chemical and Biomolecular Engineering, (Ph. D.)	2007.03~2013. 02
<b>Yonsei University</b>	Chemical Engineering, (B. S.)	2003.03~2007.02

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### **Work Experience**

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<b>Contents</b>	<b>Year</b>
<b>Teaching Assistant, Dept. of Chemical and Biomolecular Eng., KAIST</b>	
Fluid Mechanics	<b>2009</b>
Chemical and Biomolecular Engineering Experiments	<b>2009-2010</b>
<b>Postdoctoral Researcher, Dept. of Chemical and Biomolecular Eng., KAIST</b>	<b>2013.02-2014.02</b>
<b>Postdoctoral Researcher, Dept. of Chemical and Biomolecular Eng., UPenn</b>	<b>2014.03-2015.08</b>
<b>Assistant Professor, Dept. of Chemical Engineering, Ajou University</b>	<b>2015.09-present</b>

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### **Awards and Honors**

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- 2012 People Glorifying Korea (Han-vit-sa), in Biology Research Information Center (BRIC)
- 2011 Award for 1st KAIST Chemical & Biomolecular Eng. Symposium
- 2009 Award for 2008 Campus Patent Strategy Universiade (Individual)
- 2009 Award for 2008 Campus Patent Strategy Universiade (Group)
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### **List of Publications**

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1. Young-Hyun Cho, **Tae Soup Shim**, and Shu Yang, "Spatially selective nucleation and growth of water droplets on hierarchically patterned polymer surfaces", *Advanced Materials*, Accepted (2016)
  2. Ju Hyeon Kim, **Tae Soup Shim**, and Shin-Hyun Kim, "Lithographic Designing of Overhanging Microdisk Arrays toward Omniphobic Surfaces", *Advanced Materials*, Accepted (2016)
  3. Ramasamy Praveenkumar, Raekeun Gwak, Mijeong Kang, **Tae Soup Shim**, Soojeong Cho, Jiye Lee, You-
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- Kwan Oh, Kyubock Lee, and Bongsoo Kim, "Regenerative astaxanthin extraction from a single microalgal (*Haematococcus pluvialis*) cell using a gold nano-scalpel", *ACS Applied Material & Interfaces*, 7, 22702–22708 (2015)
4. Kyubock Lee, Jeong-Geol Na, Jung Yoon Seo, **Tae Soup Shim**, Bohwa Kim, Ramasamy Praveenkumar, Ji-Yeon Park, You-Kwan Oh, and Sang Goo Jeon, "Magnetic-Nanoflocculant-assisted Water-Nonpolar Solvent Interface Sieve for Microalgae Harvesting", *ACS Applied Material & Interfaces*, 7, 18336-18343 (2015)
  5. **Tae Soup Shim**,\* Seung-Man Yang, and Shin-Hyun Kim,\* "Dynamic Designing of Microstructures by Chemical Gradient-Mediated Growth", *Nature Communications*, 6, 6584 (2015)  
\*Co-corresponding author - *Selected as 'Featured Image'*
  6. Ingo Schmidt, Kyubock Lee, Emil Zolotoyabko, Peter Werner, **Tae Soup Shim**, You-Kwan Oh, Peter Fratzl and Wolfgang Wagermaier, "Nanocrystalline Calcitic Lens Arrays Fabricated by Self-Assembly Followed by Amorphous-to-Crystalline Phase Transformation", *ACS Nano*, 8, 9233-9238 (2014)
  7. Hwan Chul Jeon, Tae Yoon Jeon, **Tae Soup Shim** and Seung-Man Yang, "Direct Fabrication of Hexagonally Ordered Ridged Nanoarchitectures via Dual Interference Lithography for Efficient Sensing Applications", *Small*, 8, 1490-1494 (2014)
  8. Tae Yoon Jeon, Hwan Chul Jeon, Su Yeon Lee, **Tae Soup Shim**, Sung-Gyu Park and Seung-Man Yang, "3D Hierarchical Architectures Prepared by Single Exposure through Highly Durable Colloidal Phase Mask," *Advanced Materials*, 9, 1422-1426 (2014) - *Selected as "Frontpiece Paper"*
  9. Ju Hyeon Kim, Tae Yoon Jeon, Tae Min Choi, **Tae Soup Shim**, Shin-Hyun Kim, and Seung-Man Yang, "Droplet Microfluidics for Producing Functional Microparticles", *Langmuir*, 30, 1473-1488 (2014) – *Invited as "Featured Article", Selected as "Front Cover Paper"*
  10. Hye Soo Lee, **Tae Soup Shim**, Hyerim Hwang, Seung-Man Yang and Shin-Hyun Kim, "Colloidal Photonic Crystals toward Structural Color Palettes for Security Materials," *Chemistry of Materials*, 25, 2684–2690 (2013)
  11. **Tae Soup Shim**, Shin-Hyun Kim, and Seung-Man Yang, "Elaborate Design Strategies toward Novel Microcarriers for Controlled Encapsulation and Release," *Particle & Particle Systems Characterization*, 30, 9-45 (2013) - *Selected as "Front Cover Paper"*
  12. Soojeong Cho\*, **Tae Soup Shim**\*, Seung-Man Yang, "High-Throughput Optofluidic Platforms for Mosaicked Microfibers toward Multiplex Analysis of Biomolecules," *Lab on a Chip*, 12, 3676-3679 (2012) (\*equal contribution) - *Invited as "Optofluidic themed issue"*
  13. **Tae Soup Shim**, Shin-Hyun Kim, Chul-Joon Heo, Hwan Chul Jeon and Seung-Man Yang, "Controlled Origami Folding of Hydrogel Bilayers with Sustained Reversibility for Robust Microcarriers," *Angewandte Chemie International Edition*, 51, 1420-1423 (2012) - *Selected as "Inside Back Cover Paper"*
  14. **Tae Soup Shim**, Shin-Hyun Kim, Jae Young Sim, Jong-Min Lim, and Seung-Man Yang, "Dynamic Modulation of Photonic Bandgaps in Crystalline Colloidal Arrays under Electric Field," *Advanced Materials*, 22, 4494-4498 (2010)
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## Patents

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1. Seung-Man Yang, **Tae Soup Shim**, Shin-Hyun Kim, Jong-Min Lim, Hyo Sung Park, "Reflection Color Tuning of Colloidal Photonic Crystal in Liquid Phase Using Electrophoresis", Korea Patent 0922892, 2009.
  2. Seung-Man Yang, Su Yeon Lee, **Tae Soup Shim**, Shin-Hyun Kim, Hyerim Hwang, "Method for fabrication of microparticles with superhydrophobic surface structures and coating them on substrates", Korea Patent 1207968, 2012.
  3. Seung-Man Yang, Jae-Hoon Choi, **Tae Soup Shim**, Jae Young Sim, "Fabrication of Photonic Membrane Containing Black-Dye Molecules and application thereof", Korea Patent 1276700, 2013
  4. Seung-Man Yang, **Tae Soup Shim**, Shin-Hyun Kim, Chul-Joon Heo, Hwan Chul Jeon, "Fabrication Method of Microcapsules Using Anisotropic Swelling of Bilayer Hydrogel Microparticles", Korea Patent 1255520, 2013.
  5. Seung-Man Yang, Soojeong Cho, **Tae Soup Shim**, "Fabrication Method and Device of Photocurable Polymeric Materials Using Vertical Laminar Flows of Microfluid", Korea Patent 1490971, 2015.
  6. Shin-Hyun Kim, Seung-Man Yang, Hye Soo Lee, **Tae Soup Shim**, " "Identification film and pattern comprising photonic crystals, and anticounterfeiting product using the same", Korea Patent 1527360, 2015
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## International Conferences (first author only)

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1. **Tae Soup Shim**, Zaki G. Estephan, Zhaoxia Qian, So-Jung Park, Daeyeon Lee and John C. Crocker, "Actuation of gold nanoparticle microstructures by reversible DNA hybridization", 6/15-6/17, 89th ACS Colloid & Surface Science Symposium in Pittsburgh, PA, USA (2015)
  2. **Tae Soup Shim** and Seung-Man Yang, "Self-folding of hydrogel microparticles for spatially controlled release of drugs", 4/7-4/11, 245th ACS National Meeting in New Orleans, USA (2013)
  3. **Tae Soup Shim**, Shin-Hyun Kim, Chul-Joon Heo, Hwan Chul Jeon and Seung-Man Yang "Transformation of Bi-Layered Hydrogel Microparticles for Microcarrier", 10/02-10/06, The 15th International Conference on Miniaturized Systems for Chemistry and Life Science ( $\mu$ TAS2011) in Seattle, USA (2011)
  4. **Tae Soup Shim**, Shin-Hyun Kim, Chul-Joon Heo, Jae-Hoon Choi and Seung-Man Yang, "Optofluidic Fabrication of Foldable Hydrogel Particles Toward Intuitive Drug Delivery Carriers," 10/3-10/7, The 14th International Conference on Miniaturized Systems for Chemistry and Life Science ( $\mu$ TAS2010) in Groningen, Netherland (2010)
  5. **Tae Soup Shim**, Shin-Hyun Kim, Jae Young Sim, Jong-Min Lim and Seung-Man Yang, "Electro-responsive Photonic Bandgap of Crystalline Colloidal Arrays," 11/30-12/4, MRS (Materials Research Society) Fall Meeting in Boston, USA (2009)
  6. **Tae Soup Shim**, Shin-Hyun Kim and Seung-Man Yang, "Reversible tuning of colloidal photonic crystals using alternative current field" 12/5-12/8, The 21st International Symposium on Chemical
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Engineering Kyushu(Japan)-Daejeon/Chungnam(Korea) in Saga, Japan (2008)

7. **Tae Soup Shim**, Tae Hee Eun, Se Hoon Kim and Seung Man Yang, "Synthesis of Monodisperse Polystyrene Beads for Photonic Crystals" 11/30-12/2, The 20th International Symposium on Chemical Engineering Daejeon /Chungnam (Korea)- Kyushu (Japan) in Daejeon, Korea (2007)
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