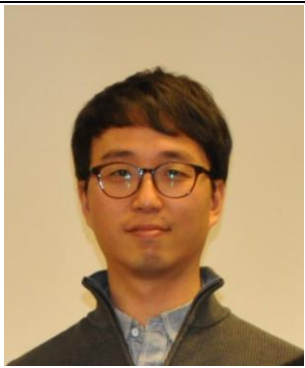


BIOGRAPHICAL SKETCH



NAME Myung-hoon (Brian), Choi	
POSITION TITLE Graduate Student/Associate Instructor	
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EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	MM/YY	FIELD OF STUDY
Indiana University (Bloomington, IN)	Graduate student	2017 ~ present	Analytical Chemistry
Kyunggi University (Suwon, South Korea)	M.S.	2007 ~ 2009	Biotechnology
Kyunggi University (Suwon, South Korea)	B.S.	1999 ~ 2006	Biology

A. Personal Statement

I am a graduate student in the chemistry department at Indiana Univ. pursuing Ph. D. under the mentorship of Prof. Lane Baker. My research interests and skills are focused on nanoscale analysis for science. My role in science is link to the advanced applications of scanning probe microscopy (SPM) techniques into the studies in solid- & bio-materials science, cell-biology, bio-physics, and electrochemistry. In the recent work I had utilized scanning electrochemical cell microscopy (SECCM) to access to the fundamental study objects in materials science. The nanoscale accessibility of electrochemical response of SECCM successfully showed the significant electrocatalytic difference of single nanoparticles which exposed (100) and (111) facets respectively. Atomic Force Microscopy (AFM) is one of my key research skills that provides nanometer resolution topography. Especially, non-contact mode AFM (NC-AFM) which I have learned from the work as application engineer in Park Systems provides the most accurate height information of nanoscale objects as operating non-invasively. Nanonewton force detection of molecule interaction at interface is also a powerful functionality of AFM which can be utilized in both ambient and liquid environment. Lastly, my third key nanoscale analysis SPM technique is scanning ion conductance microscopy (SICM). SICM visualizes nano-scale biological structures in physiological conditions more effectively than AFM. SICM enables investigation of various biochemical characteristics such as membrane surface topography, dynamics of structural changes, and surface charge property. Employing SICM applications on not only single cell levels, but also at the tissues holds promises to reveal new biochemical mechanisms related to human nature. I am always excited and open-minded to explore new research area in which such advanced applications of SPM contribute to enhance our understanding of the hidden principle of science.

B. Positions and Honors

Professional Employment

2017 fall – Present	Associate Instructor, Chemistry, Indiana University
2016 spring – 2017 fall	Product Manager, Global Marketing, Park Systems

2009 spring – 2016 spring Application Engineer of SICM and AFM, Park Systems
2008 spring – 2009 spring Laboratory Manager, Microbiology, Kyung-gi Univ.

Professional Activities

2017 fall – present Membership – American Chemical Society

C. Publications

7. **Choi, M.H.**; Siepser, N.P.; Jeong, S.J.; Wang, Y.; Jagdale, G.; Ye, X.; Baker, L.A. Probing single-particle electrocatalytic activity at facet-controlled gold nanocrystals *Nano Lett.* **2020**
6. Alden, S.E.; Siepser, N.P.; Patterson, J.A., Jagdale, G.; **Choi, M.H.** and Baker, L.A. Array Microcell Method (AMCM) for Serial Electroanalysis *ChemElectroChem* **2020**
5. **Choi, M.H.**; Baker, L. A. Biphasic-Scanning Ion Conductance Microscopy *Anal. Chem.* **2018**, 90, 11797–11801
4. Zhu, Ch.; Zhou, L.; **Choi, M.H.**; Baker, L. A. Mapping surface charge of individual microdomains with scanning ion conductance microscopy *ChemElectroChem* **2018**, 5, 2986-2990
3. Kim, J.h.; **Choi, M.H.**; Jung, G.-E.; Abdul Rahim F.; Cho, N.-J.; Cho, S.-J. Dimensional comparison between amplitude-modulation atomic force microscopy and scanning ion conductance microscopy of biological samples *Jpn. J. Appl. Phys* **2016**, 55, 8S1
2. Mizutani, Y.; **Choi, M.H.**; Cho, S.-J.; Okajima, T. Nanoscale fluctuations on epithelial cell surfaces investigated by scanning ion conductance microscopy *Appl. Phys. Lett* **2013**, 102, 173703
1. Ushiki, T.; Nakajima, M.; **Choi, M.H.**; Cho, S.-J.; Iwata, F. Scanning ion conductance microscopy for imaging biological samples in liquid: A comparative study with atomic force microscopy and scanning electron microscopy *Micron* **2012**, 43, 1390.

D. Oral presentations

5. Choi, M. H.; Jung, G.-E.; Cho, Y.-S.; Park, S.-I.; Cho, S.-J. Scanning Ion Conductance Microscopy (SICM) Technology and its Applications. Presented at Stanford Nano Shared Facilities (SNSF) Workshop, Stanford Univ., 2015.
4. Choi, M. H.; Jung, G.-E.; Cho, Y.-S.; Park, S.-I.; Cho, S.-J. Dynamic Live Cell Imaging in High Resolution Imaging of Live Cell Dynamics using Scanning Ion Conductance Microscopy (SICM). Presented at American Chemical Society meeting, San Diego, 2015.
3. Choi, M. H.; Jung, G.-E.; Park, S.-I.; Cho, S.-J. Cell Discovery like Never Before with Bio-Scanning Probe Microscopy. Presented at Korean Society of Microscopy, 2013.
2. Choi, M. H.; Jung, G.-E.; Cho, Y.-S.; Park, S.-I.; Cho, S.-J. Cell Discovery like Never Before with Bio-Scanning Probe Microscopy. Presented at European Material Research Society (E-MRS), 2012.
1. Choi, M. H.; Park, S.-I.; Cho, S.-J. Scanning Ion Conductance Microscopy (SICM) Technology and its Applications. Presented at Stanford Nano Shared Facilities (SNSF) Workshop, Harvard Univ., 2013.