

SEONGHWAN “SAMUEL” KIM

E-mail: skim31@utk.edu

Home:

1203 Sutters Mill Lane
Knoxville, TN 37909
Tel. 865-329-6873

Office:

1414 Circle Drive, SERF #524
University of Tennessee, Knoxville, TN 37996
Tel. 865-974-1167

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RESEARCH INTERESTS

Experimental and theoretical study for micro/nano-scale fluidics and energy transport phenomena with Atomic Force Microscopy (AFM) technique, Development of microcantilever sensors based on AFM, Copolymer polyelectrolyte hydrogel synthesis and characterization with AFM for biophysical applications, Study of biological, chemical molecules patterning technique for Lab-On-a-Chip application, Micro/Nanofabrication of engineered substrates for cell-matrix interaction study.

EDUCATION

Ph.D. Candidate in Mechanical, Aerospace and Biomedical Engineering **University of Tennessee, Knoxville, TN, USA**

Advisor: Prof. Kenneth D. Kihm
Co-advisor: Prof. Anthony E. English

M.S. in Aerospace Engineering – February 2000

Seoul National University, Seoul, Korea

Advisor: Prof. Oh Hyun Roh
Co-advisor: Prof. Chongam Kim

B.S. in Aerospace Engineering – February 1998

Seoul National University, Seoul, Korea

WORK EXPERIENCE

University of Tennessee Department of Mechanical, Aerospace and Biomedical Engineering, Knoxville, TN
Graduate Research Assistant, August 2004 – present.

Digital Bio Technology Co., Seoul, Korea
Research Engineer, June 2003 – June 2004.

Seoul National University Department of Aerospace Engineering, Seoul, Korea
Researcher, December 2002 – May 2003.

Mataram University, NTB, Indonesia
Korea Oversea Volunteer Lecturer, April 2000 – December 2002.

Seoul National University Department of Aerospace Engineering, Seoul, Korea
Graduate Teaching Assistant & Graduate Research Assistant, March 1998 – February 2000.

HONORS, AWARDS, AND CERTIFICATIONS

Korea-US Science Cooperation Center (KUSCO)-Korean-American Scientists and Engineers Association (KSEA) Scholarship for Graduate Students in the USA, August 2007.

Outstanding Poster Presentation 2nd Prize, Awarded for the poster "A Novel Scanning Thermal Microscopy Technique Using a Tipless Microcantilever in Aqueous Liquid," presented at US-Korea Conference on Science, Technology, and Entrepreneurship 2007, Reston, VA, USA, 9 August -12 August, 2007.

Korean Honor Scholarship from Embassy of Republic of Korea in USA, September 2005.

Korea Overseas Volunteer Certificate of Appreciation: Outstanding support and dedication for 2 years from Rector, Mataram University, Indonesia , August 2002.

Brain Korea 21 Scholarship from Ministry of Education, Republic of Korea, September 1999.

Engineering Computer Center Scholarship from Seoul National University, Seoul, Korea, September 1998.

PUBLICATIONS AND PRESENTATIONS

Refereed Journal Publications

1. Seonghwan Kim, Kyung Chun Kim, Kenneth David Kihm, "Near-Field Thermometry Sensor Based on the Thermal Resonance of a Microcantilever in Aqueous Medium," *Sensors* **7**, pp. 3156-3165 (2007)
2. S. Kim and K.D. Kihm, "Temperature dependence of the near-wall oscillation of microcantilevers submerged in liquid environment," *Applied Physics Letters* **90**, 081908 (2007)
[Also selected for the March 5 Vol. 15, Issue 9, 2007 issue of Virtual Journal of Nanoscale Science & Technology.]
3. S. Kim and K.D. Kihm, "Experimental verification of the temperature effects on Sader's model for multilayered cantilevers immersed in an aqueous medium," *Applied Physics Letters* **89**, 061918 (2006)
[Also selected for the August 21, Vol. 14, Issue 8, 2006 issue of Virtual Journal of Nanoscale Science & Technology.]
4. Hyunwoo Bang, Chanil Chung, Jung Kyung Kim, Seong Hwan Kim, Seok Chung, Junha Park, Won Gu Lee, Hoyoung Yun, Joonmo Lee, Keunchang Cho, Dong-Chul Han and Jun Keun Chang, "Microfabricated fluorescence-activated cell sorter through hydrodynamic flow manipulation," *Microsystem Technologies* **12**, pp. 746-756 (2006)
5. Seonghwan Kim, Oh Hyun Rho, Chongam Kim, "Viscous Flow Analysis around Multi-Stage Rocket System Using a Parallel-Processed Chimera Grid Scheme," *Journal of the Korea Society for Aeronautical and Space Sciences*, Vol. 28, No. 8, pp. 25-32 (2000)

Submitted Journal Paper

1. Seonghwan Kim, Anthony E. English, Kenneth D. Kihm, "Surface elasticity and charge concentration-dependent endothelial cell attachment to copolymer polyelectrolyte hydrogel," *Acta Biomaterialia*, under review

Journal Paper in Preparation

1. Seonghwan Kim, Anthony E. English, Kenneth D. Kihm, "Nanomechanical properties of basic copolymer polyelectrolyte hydrogel phase transitions probed using atomic force microscopy," *Journal of Chemical Physics*, to be submitted

Presentations and Conference Proceeding Papers

1. Seonghwan Kim and Kenneth D. Kihm, "A Novel Scanning Thermal Microscopy Technique Using a Tipless Microcantilever in Aqueous Liquid," US-Korea Conference on Science, Technology, and Entrepreneurship, August 9-12, 2007, Reston, VA, USA.
2. Seonghwan Kim and Kenneth D. Kihm, "Hydrodynamic loading on microcantilever in liquid near a solid surface," APS Division of Fluid Dynamics 59th Annual Meeting, November 19-21, 2006, Tampa Bay, FL, USA.
3. Junha Park, Seonghwan Kim, Jung Kyung Kim, Seok Chung, Keunchang Cho, Chanil Chung, Dong-Chul Han, Jun Keun Chang, "Sheathless microfluidic cytometer with asymmetric micronozzle for absolute counting of blood cells," microTAS 2004, Vol. 1, pp. 500-502, September 26-30, 2004, Malmö, Sweden.
4. Sun Hee Lim, Dae Sung Hur, Seung Hwa Jeon, Jeoung Ku Hwang, Seonghwan Kim, Alexey Dan Chin-Yu, Seung Jin Her, No Woong Kwak, Sang Soon Yoon, Young Kee Shin, Chanil Chung, and Jun Keun Chang, "Practical Use of Disposable Plastic Micro-fluidic Chip for Cell Viability test," Proc. of 2004 annual meeting & International Symposium of the Korean society for microbiology and biotechnology, pp. 401, June 21-23, 2004, Daegu, Korea.
5. Hyunwoo Bang, Chanil Chung, Jung Kyung Kim, Seonghwan Kim, Seok Chung, Dong-Chul Han, Jun Keun Chang, "Microfabricated Fluorescence-Activated Cell Sorter with Hydrodynamic Flow Manipulation," NanoTech 2004, Vol. 1, pp. 50-54, March 7-11, 2004, Boston, MA, USA

REFERENCES

Kenneth D. Kihm, PhD, P.E.

Magnavox Endowed Chair Professor

Department of Mechanical, Aerospace, and Biomedical Engineering, University of Tennessee, Knoxville, TN 37996

865-974-5292

kkihm@utk.edu

Anthony E. English, PhD.

Assistant Professor

Department of Mechanical, Aerospace, and Biomedical Engineering, University of Tennessee, Knoxville, TN 37996

865-974-8392

tenglish@utk.edu

Thomas G. Thundat, PhD.

Corporate Fellow

Leader of the Nanoscale Science and Devices Group

Oak Ridge National Laboratory

PO BOX 2008 MS6123

Oak Ridge, TN 37831

865-574-6201

thundattg@ornl.gov