

Dr. Isaac Kim

Texas A&M University-Corpus Christi
Science & Engineering, Engineering

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Education

PhD, University of Tennessee, 2008.

Ph.D Course and qualifying exam are completed, Texas A & M University, 2004.

MS, Pohang University of Science and Technology, 1994.

BS, Pohang University of Science and Technology, 1992.

Licensures and Certifications

Certificate of Professional Development in Best Practices for Online Design, TAMU-CC. (2014 - Present).

Professional Employment

Visiting Scientist, Sandia National Laboratories. (January 2014 - June 2014).
Develop hyperbolic nanostructure to enhance energy transfer

Postdoctoral Scientist, Sandia National Laboratories. (January 2012 - January 2014).
Develop optical nanostructure to enhance energy transfer

Postdoctoral Scientist, Argonne National Lab. (January 2009 - January 2012).
Develop nano-bio hybrid structure to enhance absorption efficiency in solar energy harvesting

Research Assistant, University of Tennessee. (August 2004 - December 2008).
Develop innovative imaging technique using surface plasmon resonance to detect transport and optical properties in label-free, real-time, and full-field manner

Research Engineer & Assistant Manager, Pohang Iron & Steel Company. (September 1995 - August 2003).
Thermal-fluids engineering

Corporal, Korean Army. (March 1994 - September 1995).
Munition

Research Assistant, Pohang University of Science & Technology. (March 1992 - February 1994).
A study on the Plume Flow of Attitude Control Thruster and the Plume Impingement Phenomena on the Satellite Structure

Professional Memberships

American Physical Society
Optics Society of America
Korean Scientists & Engineers Association
American Chemical Society
American Society of Mechanical Engineers
American Society of Physicists

TEACHING

Teaching Experience

ENGR 3315, FLUID MECHANICS
ENGR 4390, Special Topics - Microelectronics Manufacturing
ENTC 3406, FLUID MECHANICS-FLUID POWER
MEEN 4396, Technical Elective / Detecting Optical Property of Thermochromics Molecules

Non-Credit Instruction

Semiconductor Manufacturing Process, Yanbien University of Science & Technology. (July 2016).

SCHOLARLY AND CREATIVE ACTIVITIES

Publications

Refereed

Conference Proceedings

Kim, I., Kihm, K. (2015). In Prof. Nahmkeon Hur (Ed.), *In-situ visualization of evaporation induced self-assembly phenomena of nanofluids detecting the interfacial surface plasmon resonance* (Symposia ed., vol. 1, pp. V001T20A002). Seoul: ASME-JSME-KSME Joiny Fluids Engineering.
<http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=2473268>

Kim, I. (2015). *Evaporation induced property change and hidden cavity formation* (pp. 494-497). NSTI CRC Press Techconnect.
www.techconnect.org/proceedings/paper.html?volume=TCB2015v1&chapter=7&paper=994

Journal Articles

Kim, I. (2016). Experimental verification of epsilon-near-zero plasmon polariton modes in degenerately doped semiconductor nanolayers. *Optics Express*, 24, 18782.
www.opticsinfobase.org/oe/upcomingissue.cfm.

Kim, I., Kihm, K. (2015). Nano sensing and energy conversion using surface plasmon resonance. *Materials*, 8, 4332. <http://www.mdpi.com>

Luk, T. S., Campione, S., Kim, I., Feng, S., Jun, Y. C., Liy, S., Wright, J., Brener, I., Cartresee, P., Fan, S., Sinclair, M. (2014). Directional perfect absorption using deep subwavelength low permittivity films. *Physical Review B*, 90(11), 085411.
<http://journals.aps.org/prb/abstract/10.1103/PhysRevB.90.085411>

Presentations

Kim, I., "Research activities of Nano Sensing & Energy Lab," KAERI, Daejeon, Korea. (August 4, 2016).

Kim, I., "Surface plasmon resonance (SPR)," CEKO. (July 29, 2016).

Kim, I., "Energy conversion and nano-bio-chemical sensing," POSTECH, Pohang, Korea. (July 11, 2016).

Kim, I. (Author & Presenter), Olson, M. (Author), "Optical property detection of thermochromics molecules dependig temperature change," The 17th International Symposium of Flow Visualization, Gatlinburg, TN. (June 13, 2016).

Kim, I. (Author & Presenter), "Real-time, label-free, and full-field sensing using surface plasmon resonance," MTS Subsea Leak Detection Symposium, MTS, Houston, TX. (November 9, 2015).

Kim, I. (Author & Presenter), "Visualization of mixing dynamics in microchannel using surface plasmon resonance technique," 3D Printing and Digital Rock Physics, Sandia National Lab, Santa Fe, NM. (August 3, 2015).

Kim, I. (Author & Presenter), "IN-SITU VISUALIZATION OF EVAPORATION INDUCED SELF-ASSEMBLY PHENOMENA OF NANOFLUIDS," ASME-JSME-KSME Joint Fluids Engineering Conference 2015, AJK2015-FED, Seoul. (July 26, 2015).

Kim, I. (Author & Presenter), "Nano-bio-chemical sensing and energy conversion," 13th International Nanotech Symposium & Nano-Convergence Expo, Ministry of Trade Industry & Energy Ministry Science, ICT Future Planning, Korea, Seoul, Korea. (July 1, 2015).

Kim, I. (Author & Presenter), "Evaporation induced hidden cavity formation," Nanotech 2015, Washington DC. (June 17, 2015).

Jacobs, M. (Presenter), Guo, Z. (Other), Carillo, A. (Other), Kim, I. (Author), "Detecting optical property variation of temperature-dependent color change of thermochromics molecules using surface plasmon resonance (SPR) imaging," 3rd Science Innovation, TAMU-CC Chemistry Club, Corpus Christi. (April 22, 2015).

Kim, I., "In-situ nano-bio-chemical sensing and energy conversion using," HRI Weekly seminar, HRI, TAMU-CC. (February 27, 2015).

Kim, I., "Surface plasmon resonance imaging for near surface phenomena," GRC on Micro/nano scale phase change heat transfer, Gordon Research Conference, Galveston, TX. (January 11, 2015).

Kim, I., "Thermal-fluids and energy conversion applications using synergy of nano-biophotonics and engineering," Invited Seminar, University of Maryland, College Park. (October 14, 2014).

Kim, I., "Thermal-fluids and energy conversion applications using surface plasmon resonance," Invited Seminar, TAMU-College Station. (October 10, 2014).

Kim, I., "Thermal-fluids, biomedical and energy applications," Department Seminar, ENCS, Corpus Christi. (October 3, 2014).

Contracts, Grants and Sponsored Research

Grant

Kim, Iltai, "TCRF," Sponsored by RCO, TAMU-CC, \$30,000.00. (September 1, 2016 - August 31, 2017).

Kim, Iltai (Principal), Um, Dugan, "TAMUCC Research Enhancement Funding," Sponsored by TAMU-CC, Texas A&M University-Corpus Christi, \$5,000.00. (January 2015 - July 2016).

Sponsored Research

Kim, Itai (Principal), "Development of in-situ characterization technique using surface plasmon resonance imaging system and," Sponsored by CEKO, Private, \$460,000.00. (June 1, 2015 - October 31, 2018).

Scholarly and Creative Awards and Honors

Lead Guest Editor in a Special Issue of the Journal of Nanomaterials, Hindawi Publishing. (2016).
Research Award, CEKO, Co. Ltd. (2015).
Research Enhancement, TAMU-CC. (2014).
NSF Workshop, NSF. (2012).
Cover page in Langmuir journal, ACS. (2009).
NRC Research Associateship Program, NIST/NIH. (2008).
KUSCO-KSEA Graduate Student Scholarship, KUSCO-KSEA. (2008).
SARIF Summer GRA Award at University of Tennessee, 2008., University of Tennessee. (2008).
Korean honor scholarship from Korea government, Korea government. (2004).
A director's award for the excellent engineering work, Pohang company of Iron & Steel. (2000).
CEO's award for the excellent paper, Pohang company of Iron & Steel. (1999).

SERVICE

Department

Faculty Advisor, Capstone Design Project. (August 2016 - May 2017).
Committee Member, Faculty Search Committee. (December 2015 - May 2016).
Evaluation, Mentor, Capstone Design Project. (September 2015 - May 2016).
Judge, Capstone Design Project. (May 2015).
Committee Member, Faculty Search Committee. (January 2015 - April 2015).
Faculty Mentor, Engineering day. (February 2015).

College

Participant, Islander day. (September 2014 - Present).
Faculty Mentor, Islander day. (October 2016).
Participant, Islander day. (February 2015 - April 2015).

University

Director, 2016 Science Olympiad. (March 2016 - Present).
Program Director, science Olympiad. (March 2017).
Judge, FTC (First Tech Challenge). (January 2017).

Professional

Editor, Journal Editor, Journal of Nanomaterials. (March 2016 - Present).
Reviewer, Journal Article, Sensors. (November 2016 - December 2016).
Workshop Organizer, International Symposium of Flow Visualization 2016. (June 2016).
Reviewer, Journal Article, Experiments in Fluids. (May 2016 - June 2016).
Reviewer, Journal Article, Scientific Reports. (October 2015).
Reviewer, Journal Article, Optical society of America (Optics Express; optics letters, applied optics). (January 2015).