

Mohsin Ali Badshah

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ACADEMICS

Doctor of Philosophy (Ph.D.) Mechanical Engineering	Chung-Ang University, Seoul, Korea	Sep 2015 – Feb 2019
Master of Science (M.Sc.) Mechanical Engineering	Chung-Ang University, Seoul, Korea	Mar 2013 – Feb 2015
Bachelor of Science (B.Sc.) Mechanical Engineering	University of Engineering and Technology, Lahore, Pakistan	Sep 2006 – Sep 2010

PROFESSIONAL EXPERIENCE

Postdoctoral Scholar	University of California, Irvine, CA, USA Department of Chemical and Biomolecular Engineering	Mar 2019 – Present
Graduate Researcher	Chung-Ang University, Seoul, Korea Department of Mechanical Engineering	Feb 2013 – Feb 2019
Teaching Assistant	Chung-Ang University, Seoul, Korea Department of Mechanical Engineering	Sep 2018 – Feb 2019
Visiting Researcher	Edith Cowan University, Perth, Australia Electron Science Research Institute (ESRI)	Nov 2017 – May 2018
Team Lead Engineer	National University of Sciences & Technology, Islamabad, Pakistan SMART Lab, NUST, SEECS	Jul 2012 – Feb 2013
Assistant Engineer	National Radio and Telecommunication Corporation, Huripur, Pakistan	Jan 2012 – Jul 2012
Production Engineer	RAVI Autos, Pvt. Ltd., Lahore, Pakistan Production Division	Sep 2010 – Jan 2012

SELECTED PUBLICATIONS (Out of 18)

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- [J1]. **Badshah, M. A.;** Kim, J.; Yeom, J.; Abbas, N.; Haq, M. R.; Kim, Y.; Lu, X.; Kim, S. min. Glass Nanoimprinted Plasmonic Nanostructure for High Power Laser Stable Surface-Enhanced Raman Spectroscopy Substrate. *Appl. Surf. Sci.* **2021**, *542* (November 2020), 148587. <https://doi.org/10.1016/j.apsusc.2020.148587>.
- [J2]. **Badshah, M. A.;** Michel, D.; Alam, N. E.; Madni, I.; Abbas, N.; Alameh, K.; Kim, S. min. Enhancing the Sensitivity of a Surface Plasmon Resonance Sensor with Glancing Angle Deposited Nanostructures. *Plasmonics* **2020**, *15* (6), 2161–2168. <https://doi.org/10.1007/s11468-020-01245-0>.
- [J3]. **Badshah, M. A.;** Ju, J.; Lu, X.; Abbas, N.; Kim, S. min. Enhancing the Sensitivity of DNA Microarrays by Metal-Enhanced Fluorescence Using Vertical Nanorod Structures. *Sensors Actuators, B Chem.* **2018**, *274* (August), 451–457. <https://doi.org/10.1016/j.snb.2018.07.163>.
- [J4]. **Badshah, M. A.;** Kim, J.; Jang, H.; Kim, S.-M. Fabrication of Highly Packed Plasmonic Nanolens Array Using Polymer Nanoimprinted Nanodots for an Enhanced Fluorescence Substrate. *Polymers (Basel)*. **2018**, *10* (6). <https://doi.org/10.3390/polym10060649>.
- [J5]. **Badshah, M. A.;** Ju, J.; Hong, D.; Jang, H.; Kim, S.; Park, J. S. Fabrication and Characterization of Glancing Angle Deposited Nanostructured Surfaces for Enhanced Boiling Heat Transfer. *J. Vac. Sci. Technol. B* **2016**, *34* (5), 051803. <https://doi.org/10.1116/1.4959837>.
- [J6]. **Badshah, M. A.;** Jang, H.; Kim, Y. K.; Kim, T.-H.; Kim, S. Development of a Rapid Cure Polydimethylsiloxane Replication Process with Near-Zero Shrinkage. *J. Micro/Nanolithography, MEMS, MOEMS* **2014**, *13* (3), 033006. <https://doi.org/10.1117/1.JMM.13.3.033006>.

TEACHING EXPERIENCE

CAD 02: Computer Aided Program Solving for Engineers (Undergraduate), 3.0 credit hours, Spring 2018.

RESEARCH PROJECTS

- ❖ **Researcher:** "Development of thermoregulatory material with adaptive infrared and thermoregulatory capabilities", funded by DARPA, USA. **PI.: Prof. Alon Grodetsky** (University of California, Irvine, USA).
- ❖ **Researcher:** "Energy-harvesting using laminated glass panel employing microstructures and luminophores" funded by Australian Research Council (ARC Linkage Grant No: LP130100130) **PI.: Prof. Kamal Alameh** (Edith Cowan University, Australia).
- ❖ **Lead Researcher/Award Recipient:** "Designing of highly sensitive surface plasmon resonance sensor using glancing angle deposition", funded by Australian Endeavor Research Award, Amount: \$25,000
- ❖ **Researcher:** "Designing of highly sensitive microarray biochip for detection of Atopic dermatitis", funded by Korean Health Technology R&D Project, Ministry of Health and Welfare, Republic of Korea (Grant No: HI14C2687). **PI.: Prof. Seok-min Kim** (Chung-Ang University, Seoul, Korea).
- ❖ **Researcher:** "Development of glass molded Micro/Nano optical components using amorphous carbon mold", funded by National Research Foundation of Korea (Grant No: 2015R1A5A1037668) **PI.: Prof. Seok-min Kim** (Chung-Ang University, Seoul Korea).
- ❖ **Researcher:** "Fabrication & characterization of GLAD nanostructures for enhanced boiling heat transfer" funded by KETEP Grant No: 20134020200350, **PI.: Prof. Seok-min Kim** (Chung-Ang University, Seoul Korea).
- ❖ **Researcher:** "Development of rapid cure method, surface characterization, and curing conditions effect on the inherent shrinkage of PDMS material", funded by KETEP Grant No: 20134020200350, **PI.: Prof. Seok-min Kim** (Chung-Ang University, Seoul Korea).
- ❖ **Researcher:** "Design and development of a tele-surgical training robot and simulator", funded by Ministry of ICT R&D Pakistan **PI: Prof. Usman Hassan** (National University of Sciences and Technology, Islamabad, Pakistan).

HONORS AND AWARDS

- 2019 **Best Poster Award** at the 8th Nanoimprint · Molding · Print Forum
- 2018 **Chung-Ang Support Research Scholarship**
- 2017 **Australian Endeavor Award**
- 2016 **Chung-Ang Support Research Scholarship**
- 2015 **Chung-Ang Young Scientist Scholarship for Ph.D. Studies**
- 2013 **Chung-Ang Young Scientist Scholarship for Master Studies**
- 2013 **1st Runner Up** at "TIE International Business Plan Competition"
(https://www.dawn.com/news/1333907/locally-developed-simulator-promises-to-train-surgery-students?fbclid=IwAR0Dfzln_V_ovg-t8LCuI9-5enMfGL49Rnp9QYL63wMB50JxZmXOSd-YpxM)
- 2012 **Silver Medal** at International Surgical Conference (SurgiCon'12) (<http://seecs.nust.edu.pk/Student-Affairs/Student-Achievements/pages/alzahravi/index.php>)

PROFESSIONAL SERVICES

Editorial/Peer Reviewer Experience for Journals

Peer Reviewer Experience for Journal

Scientific Reports, Polymers, Journal of Chemical Society, International Communications in Heat and Mass Transfer, Energy & Environment, Sensors, Coatings, Materials, Nanomaterials, Metal, Micromachines

REFERENCES

Available upon request