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## New Faculty: Jiyoung Chang, Assistant Professor

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The University of Utah Department of Mechanical Engineering is pleased to announce the arrival of Dr. Jiyoung Chang. Chang is interested in exploring new materials and building innovative applications. Here in Utah he is building a multi-disciplinary research lab implementing mechanical engineering, materials science, chemistry, electrical engineering, and a physics knowledgebase towards wearable and flexible electronics.

Before coming to Utah Dr. Chang was a postdoctoral fellow in the physics department at the University of California, Berkeley, the Lawrence Berkeley National Laboratory (LBNL), and in the recently created Kavli Energy Nanoscience Institute. He obtained his B.S. and M.S. degrees from the Yonsei University's School of Mechanical Engineering in Korea in 2005 and 2007, respectively. He received his Ph.D. in mechanical engineering from the University of California, Berkeley, in 2012. Chang also spent one year as a postdoctoral scholar in the school of dentistry at the University of California, San Francisco.

Flexible and wearable electronics are now a part of everyday life including smartwatches, e-tattoos, hearing aids, performance monitors, headsets, smart glasses, glucose monitoring, drug delivery, and smart clothing.

Along Chang's mechanical engineering journey, he became engaged in developing micro scale *in-vitro* cell culture platform for mimicking teeth growth while a postdoc in the UCSF School of Dentistry. From there he worked on atomically thin-layered materials — so called “2-D” materials — at UC Berkeley and LBNL.

“Interacting with people with various backgrounds such as physics, material science and chemistry, provided me invaluable insights and knowledge,” says Chang. “Such experiences inspired me to come up with solutions that were not possible using a solely mechanical background. I want to build a multi-disciplinary research lab, which invites students and researchers from various academic backgrounds in engineering and science.”

Opportunities in wearable electronics are staggering. The hot topic in this research is the choice of materials. Due to their superior electrical and mechanical properties, atomically thin 2-D materials are considered strong candidates. Synthesizing 2-D materials is more like making custom made sandwiches. Constructing structures using different atomically thin materials can bring unique and interesting properties to be used in wearable devices.

“I am interested in self-powered wearable sensors powered by energy harvesting nanostructures, including piezoelectric 2-D materials and polymers,” says Chang. “And I am excited to meet motivated and enthusiastic students and researchers at the University of Utah who can move forward with me to explore new materials and build these advanced applications.”

Dr. Chang’s current research focuses on novel flexible electronics based on nanomaterials such as nanofibers and 2-D materials. His research experience includes near-field electrospinning, bioMEMS and MEMS/NEMS devices fabrication.

On a personal note, Chang and his family enjoy outdoor activities such as camping, skiing and visiting national parks. They are excited to be in Utah, known as one of the best regions for enjoying nature year-round.

Learn more about Professor Chang, his research and his students by visiting his [profile page](#).

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The Department of Mechanical Engineering at the University of Utah is committed to providing students with broad-based, rigorous and progressive education. By combining state-of-the-art facilities with renowned faculty, the department provides an education that gives students the necessary skills to become the next generation of innovators.

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