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Lecture Series

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"Smart" Surgical Technologies: What's Next?

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LECTURE: 9:00 AM - 10:00 AM

ENGINEERING CENTER
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Abstract: There is a revolutionary shift in the development of surgical tools and technologies. Sensors and computers are integrated into surgical tools to enable intelligent "smart" tools. In our laboratories, we have been developing practical and smart microsurgical tools and 3-D image guided surgeries that enhance the surgeon's ability to visualize optically transparent tissues, to identify and track visually transparent tissue edges, to maintain safe surgical positions, to detect early instrument contact with tissue and to assess depth of instrument penetration into tissues. These innovations enhance the surgeon's ability to achieve surgical objectives, diminish surgical risk, and improve outcomes. In this talk, I will summarize our efforts and future directions.

Biography Jin U. Kang is Jacob Suter Jammer Professor of Electrical Engineering and Chair of the Department of Electrical and Computer Engineering at the Johns Hopkins University. He conducts research on biophotonics, fiber optics, and optoelectronic devices for applications in medicine and biosensing. One of the main focus areas of his research is the development of real-time, ultrafast optical coherence tomography 3-D imaging and sensing systems for guided surgical intervention. Using this technology, he has been developing "smart" surgical tools. During his career, Dr. Kang has published more than 145 journal papers and contributed to 180 conference proceedings. He holds more than 30 patents in fiber optics, and many of these are licensed to medical robotics companies. He is Fellow member of the Optical Society of America (OSA) and SPIE.

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