

*Joint Seminar with Departments of  
Mechanical and Aerospace Engineering and  
Computer and Information Science & Engineering*

Tuesday, January 27, 2009

4:00 pm

in Room 303 MAE-A

## Exploring Biomedical Engineering Applications to Minimally Invasive Urologic Surgery

**Li-Ming Su, M.D.**

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Chief, Robotic and Minimally Invasive Urologic Surgery  
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### Abstract

Background and Objective:

Minimally invasive therapies in urology have grown considerably in the last decade for both prostate and kidney cancer treatment including laparoscopy, robotic surgery, and thermal ablation. Further improvements in both diagnostic and therapeutics, however, are necessary to optimize patient outcome. From the diagnostic side, medical imaging such with CT, MRI and optical imaging require greater exploration and refinement. From the therapeutic end, topics such as haptic feedback for robotic surgery and soft tissue navigation using augmented virtual reality are in their infancy in the field of urology.

During this seminar I will present the clinical scenarios that underlie the following topics for discussion:

For Prostate Cancer:

- Imaging of prostate cancer foci to improve cancer localization and staging
- Imaging of cavernous nerves responsible for penile erections
- Exploring haptic feedback for robotic prostate surgery

For Kidney Cancer:

- Augmented reality for tumor localization and intraoperative surgical navigation
- Role of optical imaging for subtyping of kidney tumors

There is a tremendous opportunity for synergy between clinicians and biomedical researchers on these topics. The objective of this seminar is to explore possible avenues for research and collaboration between urologists, computer scientists, radiologists, biomedical and mechanical engineers on the topic of minimally invasive surgical treatments for these urologic diseases.

### Biography

**Li-Ming Su, M.D.**, is the David A. Cofrin Professor of Urology and Chief of the Division of Robotic and Minimally Invasive Urologic Surgery. Dr. Su also serves as Associate Chair for Clinical Affairs. Dr. Su is recognized as an expert in minimally invasive techniques for the treatment of prostate and kidney cancer. Prior to joining the UF faculty, Dr. Su served as the Director of Laparoscopic and Robotic Urologic Surgery at the Brady Urological Institute at Johns Hopkins University. Dr. Su completed his fellowship training at Johns Hopkins, his urology residency training at New York Presbyterian Hospital-Cornell and medical school and undergraduate degree at Cornell University. He has authored multiple book chapters and numerous peer-reviewed manuscripts on the topic of minimally invasive surgery for prostate and kidney cancer.

Special interests: robotic and laparoscopic surgery as applied to prostate, kidney, testis and adrenal tumors

*Refreshments served in 221 MAE-A beginning at 3:45 pm*

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