

奈米工程與微系統研究所 演講公告

Seminar of Inst. NanoEngineering and MicroSystems

2012 年 11 月 14 日，上午 1000—1200，工程一館 108 室
10-12 AM on November 14, 2012; Room 108 of Engineering Building I

錢煦 院士

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PERSPECTIVES OF ENGINEERING IN MEDICINE

In the 21st century, the highest priority for most people is health. By applying engineering principles and technology to medicine, biomedical engineering plays an important role in improving the health and quality of life of people. The analysis and synthesis of the vast amount of biomedical information generated by the dramatic progresses in modern biology and genomics require the application of new concepts and techniques in engineering. An integrative approach is essential for the elucidation of physiological regulation in health and the development of innovative methods for diagnosis, treatment and prevention of disease. The integration requires interdisciplinary research and education at the interface of engineering and biomedicine, the coordination of research across multiple scales in the biological hierarchy, and the synergism of science and technology with the ultimate aim of translation. The integration of research findings with the aid of systems biology has led to the generation of a cohesive body of knowledge through engineering analysis and network construction. Integration of advances in science and technology, including fields such as drug delivery, nanomedicine, bioimaging, biomaterials, stem cells, regenerative medicine, non-invasive procedures, wireless health, etc., will lead to improvements in healthcare and its delivery. These approaches will allow the practice of individualized, preventative medicine that is patient-centered and cost-effective. The achievement of these promises and challenges requires the innovation from academia, its collaboration with industry and hospitals for translation, and the support by government and private foundations. Such collaborations in the application of engineering to medicine will lead to the enhancements of health and quality of life of people.

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