



Time: 10:00 am, 27 June 2018 (Wed)

Venue: Room 513, William M.W. Mong Engineering Building, CUHK

## Bioinjectable biomaterials developments and clinical applications

可注射生物材料的研究及临床新发展



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### Abstract

In China/Hong Kong, the number of osteoporotic fracture cases is ever increasing and it ranks among the top-five conditions causing disability and prolonged hospital stay. The cost for treatment is expected to increase 3 times by 2030. Porous bones break easily and heal badly, so an elderly person with a fracture may have to stay permanently in a rest home. The detrimental effect of long-standing pain and diminished quality of life, especially when followed by loss of independence, should not be underestimated. To deal with this issue, based on our 20 years of research in the area of bioactive bone cements, our novel bone fillers could stimulate new bone formation and provide reinforcement to porous bone. Therefore, we plan to develop a systematic clinical approach to prevent elderly osteoporotic bone fractures. With a multidisciplinary team of experienced biomedical engineers, biomaterial scientists, and clinicians with a good track record of deep collaboration, the objectives are to Investigate the risk factors and patterns leading to osteoporotic fractures, and develop a computer-guided risk index system; to Optimize the properties of the novel bioactive fillers, including the osteoinductive, physical, and chemical properties; and to Develop a minimally invasive treatment protocol. This should ultimately reduce the healthcare costs and help improve the elderly's quality of life. We would be the first to establish a clinical protocol for fracture risk diagnosis and prevention using injectable biomaterials and a minimally invasive treatment method. Overall, the injectable biomaterials and their future development as well as clinical applications will be explored in this lecture.

### Biography

Professor William Lu:

Professor Lu, Ng Chun-Man Professor in Orthopaedic Bioengineering, obtained his PhD degree and the "Distinguished Graduate Award" from the University of Waterloo, Canada, in 1994. He joined the Department of Orthopaedics & Traumatology, The University of Hong Kong (HKU) in 1995 as an Assistant Professor (non-clinical) and was promoted to Associate Professor in 2001, and full Professor in 2009. He was established Orthopaedic Research Centre in 1995 and has served as director since then. Professor Lu has specific experience in the areas of Orthopaedic Biomechanics, Biomaterials, bionano-technology as well as Clinical Bioengineering teaching and research. He has achieved substantial international recognition in the area of bioengineering and is widely acknowledged as top 1% scholars (2009-2018) according to ISI's Essential Science Indicators. Professor Lu has consistently secured a significant proportion of the research funding of HK\$47 millions from Hong Kong and RMB25 millions from PR China in his areas of activity from a number of major funding bodies, which demonstrates his aptitude for creative application of knowledge. He held a number of patents for his innovations and has published more than 250 papers in international Peer Reviewed Journals, with more than 8000 citations and H-index 49.

**\*\*\*ALL ARE WELCOME\*\*\***

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