
臺灣大學應用力學研究所
演 講 公 告

主 講 人：王建凱助理教授

臺灣大學機械工程學系

講 題：應用力學與最佳化理論於細胞彈性識別與工程設計之研究

摘 要：詳如附件

主 持 人：周佳靚助理教授

時 間： 111年2月21日（星期一）下午2時20分開始

地 點： 臺灣大學應用力學研究所國際會議廳

☆☆ 歡迎聽講，敬請張貼 ☆☆

演講題目 (Title)

Application of Mechanics and Optimization Theories for
Cell Elasticity Identification and Engineering Design
(應用力學與最佳化理論於細胞彈性識別與工程設計之研究)

Chien-Kai Wang, Ph.D.
(王建凱 助理教授)

Assistant Professor, Department of Mechanical Engineering
National Taiwan University, Taiwan (R.O.C.)
國立臺灣大學機械工程學系暨研究所

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摘要 (Abstract)

In general, the main goal of multidisciplinary research in engineering and applied sciences is to open doors to exciting possibilities of discovering new scientific phenomena and mechanisms that classical physics cannot touch by means of mechanics. Based on computational mechanics, experiments can be guided through understanding particular principles at various environmental conditions. Furthermore, computation works inevitably need to be validated by several experimental tests. Therefore, research activities in our multidisciplinary study consist of theoretical, experimental, and computational mechanics studies. Following this scenario, this talk will report our current research themes including “Toward solving inverse problems in anisotropic mechanical properties of cells by microfluidics and atomic force microscopy” and “Mechanics of robust optimization for solid continua and structural systems under loading uncertainties” and present several related case studies. Thus, in order to systematically interrogate the relevant integrative mathematical problems, we have developed novel theories of “Mechanics of engineering design considering uncertainties” and applied advanced experimental techniques of “Microfluidics” and “Bio atomic force microscopy” with the benchmark studies of fundamental research in the fields of biology, physics, and engineering. Finally, in practical applications, we anticipate that the research achievements will fertilize us to understand more physiological states of biological specimens, mechanical characteristics of solid continua, and design strategies of stressed engineering systems under uncertain loads of various environments.