

Natural Sciences 自然科學

# PolyU academics honoured with National Natural Science Awards

## 理大學者喜獲國家自然科學獎

From left: Prof. Chung Chi-ping, PolyU Court Chairman; Prof. Cecilia Li of PolyU; Prof. Timothy W. Tong, PolyU President; Prof. Huang Yuesheng of the Southwest Hospital of the Third Military Medical University; and Prof. Xie Heping, President of Sichuan University

左起：理大大學顧問委員會主席鍾志平教授、理大李曾慧平教授、理大校長唐偉章教授、第三軍醫大學西南醫院黃躍生教授，以及四川大學校長謝和平教授



In collaboration with mainland partners, Prof. Cecilia Li from the Department of Rehabilitation Sciences was awarded a Second-Class 2012 State Scientific and Technological Progress Award. The winning project, "Novel technology for serious burn treatment", led by renowned mainland expert Prof. Huang Yuesheng and Prof. Li, involved the Southwest Hospital of the Third Military Medical University and several other mainland hospitals. Through the project, Prof. Li made significant contributions to advancing rehabilitation technology for serious burn.

Prof. Li has been very active in conducting research on burns victims and her innovative Smart Pressure Monitored Suit and Smart Pressure Monitored Padding have been applied to patients with burn injuries. Funded by the University Grants Committee's General Research Fund, the first clinical trial of this project commenced in 2012. The collaboration between the Chongqing No. 3 Military University and PolyU will further enhance these newly developed technologies through this translational research project in the clinical community.

理大康復治療科學系李曾慧平教授聯同內地合作夥伴，憑「嚴重燒傷一體化救治新技術的研究與應用」項目，榮獲二零一二年度國家科學技術進步二等獎。該項目由內地專家黃躍生教授和李曾慧平教授領導，與第三軍醫大學西南醫院等多所內地醫院共同進行，李曾慧平教授主要負責嚴重燒傷康復技術的研究與推廣應用，為該項目帶來重要貢獻。

李曾慧平教授一直致力進行有關燒傷康復的研究，並以智慧壓力衣及智慧壓力墊提升燒傷後疤痕增生後接受壓力治療的療效。她成功申請大學教育資助委員會的優配研究金，而第一階段的臨床試驗已於二零一二年開展。李曾慧平教授將與重慶第三軍醫大學合作，通過這臨床研究項目，改良這些新開發的技術。

Recently, four PolyU academics received national honours for their outstanding research achievements in natural sciences.

四位理大學者最近獲國家頒授獎項，以表揚他們在自然科學範疇上的卓越科研成就。



Prof. Lee Shun-cheng wins a State Natural Science Award  
李順誠教授獲國家自然科學獎

In addition, Prof. Lee Shun-cheng at the Department of Civil and Environmental Engineering won a Second-Class 2012 State Natural Science Award for the project "Physico-chemical characterization and formation processes of chinese loess, soil dust and other aerosols, and their linkages with climate and environment changes", which was conducted with collaborators at the Institute of Earth Environment, Chinese Academy of Sciences.

Over the past 20 years, Prof. Lee Shun-cheng and his research team have been conducting intensive field investigations in the deserts of northwestern China, the Chinese Loess Plateau, the Qinghai-Xizhang (Tibetan) Plateau, and urban areas in eastern China. The research has focused on Chinese loess, atmospheric dust and carbonaceous aerosol and their linkages with climate and environmental change. The formation and evolution of the loess and Asian dust have been investigated comprehensively, with various studies focusing on dust sources, emission, transport, deposition and re-working processes.

此外，土木及環境工程學系李順誠教授與中國科學院地球環境研究所的研究人員，憑「黃土和粉塵等氣溶膠的理化特徵、形成過程與氣候環境變化」項目，獲二零一二年度國家自然科學二等獎。

李順誠教授與研究團隊在中國西北沙漠、黃土高原、青藏高原及東部城市先後開展了近二十年的黃土、大氣粉塵和碳氣溶膠野外觀測與實驗分析，綜合研究中國黃土、現代粉塵和碳氣溶膠及其與氣候環境的聯繫，揭示了黃土和亞洲粉塵的源區、釋放、傳輸、沉降與變化的全過程。

Prof. Wong Wing-tak  
receiving the Natural  
Science Award  
黃永德教授獲頒授  
自然科學獎



Prof. Wong Wing-tak, Head of the Department of Applied Biology and Chemical Technology, received a Second-Class Natural Science Award from the Ministry of Education. In his award-winning project, "The development and application of lanthanide luminescent materials", he designed and synthesized a series of new lanthanide complexes and nanoparticles with long-excited wavelength, high quantum efficiency, non-toxicity and water solubility. He also investigated the relationship between particle structure and photo-physical behaviour and localization in vitro.

There is a great demand for developing fluorescence marker with high efficiency and stability for in vitro or in vivo imaging. Prof. Wong Wing-tak remarked that "lanthanide ions are considered the best substitutes for the more commonly used organic fluorophores, as lanthanide complexes exhibit long-lived luminescence lifetimes, large Stokes shifts, and sharp emission peaks". Newly established lanthanide complexes have been successfully applied in imaging specific organelles, such as cytoplasm, lysosome, endoplasmic reticulum and plasma membranes.

另一方面，理大應用生物及化學科技學系系主任黃永德教授領導進行的「鐳系發光材料的發展與應用」研究，則獲頒國家教育部自然科學二等獎。研究主要針對有機螢光探針中的共性问题，並開發了一系列稀土配合物——鐳系配合物及納米材料，它們具有持久激發波長、高量子產率、無毒理性及良好水溶性的特性。研究亦建立了相應的稀土配合物庫，揭示高分子結構與光物理性質、細胞器定位之間的關係。

發展高發光效率及對光穩定的生物標記試劑，以用於生物分析及細胞成像，是目前該領域的熱門研究範圍。黃永德教授表示：「鐳系金屬離子被認為是替代有機螢光分子的最佳選擇，因為鐳系金屬配合物具有較長的螢光壽命、大範圍能級躍遷和較窄的發射光譜。」是次研究已成功應用於人體正常細胞及癌細胞標記，並發現它們具有不同的細胞定位性，如細胞質、內質網及細胞膜等。



Dr Chan Tat-leung  
receiving the Natural  
Science Award  
陳達良博士獲頒授  
自然科學獎

Through long-term collaboration with research teams from the China Jiliang University and Zhejiang University, Dr Chan Tat-leung, Associate Professor at the Department of Mechanical Engineering, also received a First-Class Natural Science Award from the Ministry of Education as the second accomplice of the project. This is a recognition of his research accomplishments and contributions in "Flow mechanism in the multiphase and multicomponent complex system with micro-nano scale".

"It is important to understand the formation and transport mechanisms in such multiphase flows in order to achieve efficient applications in many areas of science and engineering", Dr Chan said. Currently, it is still a challenging problem to apply multiphase and multi-component complex systems at the micro and nano scales in the areas of thermal-fluid, materials, chemical, environmental sciences and engineering.

機械工程學系副教授陳達良博士憑著對「微納尺度多相與多組分複雜系統中流動機理的研究」項目的貢獻和成果，以第二完成學者身分獲國家教育部頒授自然科學一等獎。這項目由陳達良博士與合作多年的中國計量學院及浙江大學的研究小組共同進行。

陳達良博士表示：「明白多相流動的形成及運輸機理十分重要，這可更有效地應用相關技術於科學及工程學的多個範疇上。」陳博士補充，現時，確定微納尺度多相及多組分的複雜系統，在熱流、物料、化學、環境科學及工程範疇上如何應用，仍是甚具挑戰性的問題。❖