

## **DEGREE OF DOCTOR OF SCIENCE, *honoris causa***

**Professor Lee Chack-fan, GBS, JP**

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Madam Chancellor,

Today, I am honoured and privileged to present the citation for Professor Lee Chack-fan, a world-renowned geotechnical engineer and water resource management expert, who is dedicated to his calling, compassionate towards the common people, and loves his country.

Professor Lee Chack-fan was born in 1945 in Zhongshan and came to Hong Kong when he was eight years of age. His parents made sure that Lee and his two brothers went to very good schools. He first attended the S.K.H. St. Peter's Primary School and then St. Joseph's College for his secondary education. In these character-defining years, he was building a strong sense of personal purpose from reading books — he spent hours in bookstores immersing his mind in the sea of words. The great world classics showed him the far corners of the earth; biographies of great people inspired him thoughts of duty towards the society; and modern Chinese literature instigated his concern for the fortune of his motherland, and this, in particular, made him aware of the plight of Chinese farmers and the need for modern irrigation and water resource management. Upon graduation from school in 1965, he embarked on his study of Civil Engineering at The University of Hong Kong. He completed his Bachelor's degree with first class honours in 1968 and then a Master's degree in 1970. On the advice of his thesis supervisor, Professor Peter Lumb, he went abroad to The University of Western Ontario in Canada and finished his Doctor of Philosophy in Geotechnical Engineering in 1972.

Eastern Canada proved to be a perfect place for Professor Lee to establish himself as a distinguished geotechnical engineer. A land with abundant water resources and rich uranium ores prompted the construction of many hydro-dams and nuclear power plants. Back in the 1970s, inadequate understanding of rock mechanics often posed structural

hazards to these construction sites. The rock beneath the earth's surface is highly compressed, and can become deformed and brittle. The ground-breaking model for resolving this engineering problem was one of the earlier key contributions of Professor Lee. He subsequently made major and related engineering breakthroughs in, for example, earthquake hazard assessment and mitigation, underground excavation, and pit slope hazard assessment.

Professor Lee spent over 18 years with Ontario Hydro after short teaching stints at The University of Western Ontario and the University of Toronto. He participated in the design and management of some major nuclear plants and several dozen hydro-dams, and he was involved in a number of major research projects. He eventually reached the rank of chief engineering and general manager of the Engineering Department. For a long time, he served as an advisor to many international development agencies, such as the World Bank, the United Nations Development Plan and the Asian Development Bank, and as a specialist consultant to the International Atomic Energy Agency and the Canadian International Development Agency. For recognition of his outstanding engineering career, he was elected a Fellow of the Hong Kong Academy of Engineering Sciences in 2001 and a Fellow of The Canadian Academy of Engineering in 2002; an Academician of the Chinese Academy of Engineering in 2003; and a Fulbright Distinguished Scholar in 2005.

The thousands of rivers in China are sources of both livelihood and suffering. The effort to tame them and to manage the scarce water resource better has been unrelenting for the past decades. Since the 1980s, Professor Lee has participated in numerous projects as a volunteer technical consultant invited by the Ministry of Water Resources. In particular, he made significant contributions to all major stages of the Three Gorges Dam project — from a feasibility study, site evaluation, and construction planning to the completion of the project. His expertise in rock mechanics was pivotal in ensuring the stability of ship locks. Decades of service in the mainland have allowed him to develop a comprehensive picture of the causes of floods and droughts. He advocates ecological restoration of the upper course of rivers, modernization of irrigation methods, reforestation, and environmental education; and the impact of this wide range of work will certainly be felt in the coming generations. He has received many accolades for his immense contributions to the motherland, and Qian Zhengying, Vice Chairperson of the Chinese People's Political Consultative Conference and Minister of Water Resources, has perhaps given the most fitting tribute, calling him a 'Dayu's descendant'.

Indeed Professor Lee's highly productive engineering career has thrived in the wilderness. His footprints can still be found in remote mountains, tundra, and jungles. Some young engineers nowadays might prefer computer modelling in the comfort of modern office buildings, but truly great engineers — borrowing from the words of the US engineer president Herbert Hoover — “would live for years on the outside border of civilization, where beds are hard, where cold bites, and heat burns, and where there is little home life”. True to his calling to serve the common people through his own engineer's hands, Professor Lee had endured weekly long-haul flights and hours of bumpy rides, and he had put his life on the line when a misstep along a gallery road would end up in falling a thousand feet.

Professor Lee has also left many imprints in Hong Kong as an engineer, an educator and a philanthropist. Some of these imprints are literal and can be found on many local soil-cut slopes which protect life and property. The widespread use of soil nails for stabilizing slopes in Hong Kong was an outcome of a large-scale research project led by Professor Lee back in the 1990s, when he had already returned to The University of Hong Kong, his alma mater. In 1994, he was appointed Professor in the Department of Civil Engineering, then the Head of the Department in 1998, the Pro-Vice-Chancellor and Vice President in 2000, and the Director of HKUSPACE in 2008. Until his retirement in 2015, he had contributed to the enhancement of the research capacity of the university, published over 280 journal articles, and established many strategic ties with China and overseas universities.

Despite his very busy schedule, he has also been active in charity work and public services. The Fu Hui Charity Foundation Limited, of which he is the Honorary Chairman and former President, has been supporting the construction of many primary and secondary schools, schools for special needs, orphanages, and hospitals in remote villages in China. It also provides scholarships and bursaries for tens of thousands of underprivileged university students. Professor Lee has served as the Chairman of the Harbour Front Enhancement Committee; Chairman of the Veterinary Surgeons Board; Chairman of the Council of the Lord Wilson Heritage Trust; Chairman of the Board of the Hong Kong Institute for Promotion of Chinese Culture; and Director of the Jao Tsung-I Petite Ecole. His contributions to Hong Kong were officially recognized with the Gold Bauhinia Star in 2013.

As a devoted Buddhist, Professor Lee Chack-fan finds strength, compassion and peace from practising Zen in his daily life. The saying ‘Pray not for an easy life, but pray for the end of suffering of mankind’ has sustained him through various hardships and hazards. He believes in a perfect harmony between humanity and the environment. He has authored a

series of books that has inspired many to live with happiness and at the same time serve the poor and needy.

Madam Chancellor, Professor Lee Chack-fan has had an extraordinary career in engineering and has devoted himself to the betterment of humanity, especially the people in China, with his expertise across a broad range of geotechnical engineering areas and his skilful hands. In recognition of Professor Lee Chack-fan's outstanding achievements, may I invite our President to present Professor Lee Chack-fan for conferment of the degree of Doctor of Science, *honoris causa*.

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*Citation written and to be delivered by Professor Andrew Lui Kwok-fai*

## 榮譽理學博士學位

### 李焯芬教授

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校監女士：

今天，能夠有機會在此向李焯芬教授致贊辭，實在深感榮幸。李教授是享譽國際的岩土工程兼水利專家，畢生盡忠職守，關心社會，胸懷祖國。

李教授生於 1945 年，祖籍廣東中山，八歲來港。李氏一門三兄弟幼承庭訓，從小學至中學階段，接受優質教育。李教授先後畢業於聖公會聖彼得小學與聖約瑟書院。在青少年成長期間，李教授每於書店中徜徉書海，博覽群書，是以早懷大志。所閱中外經典，教他放眼世界；偉人傳記，則啟迪自身社會責任感；現代中國文學，令他關注國家前途之餘，尤其關懷農民疾苦，體會到現代水利之需，因而於 1965 年中學畢業後考入港大，主修土木工程學。1968 年以一級榮譽佳績完成學士學位課程之後，1970 年亦順利取得碩士學位，並聽取其論文導師 Peter Lumb 教授建議，負笈加拿大西安大略大學進修，其後於 1972 年獲授岩土工程學哲學博士學位。

由於加拿大東部地區環境適合發展相關事業，李教授得以一展所長，在岩土工程界嶄露頭角。當地水資源兼鈾礦含量豐富，建有多座水力發電水壩與核能發電站。早於 1970 年代，由於岩石力學知識不足，難免在結構上對建築地盤構成危險。地表以下岩石極度受壓，易於變形而變得脆弱。李教授早期在其專業方面的重大貢獻之一，即在於就有關工程問題提出創新方案，及後更屢有突破，例如對於地震危險評估及紓減、地下挖掘，以及工地斜坡危險評估等等均提出新的改進方法。

李教授先後於西安大略大學與多倫多大學任教，後於加拿大安大略省水電局及省電力公司任職 18 年，期間除了參與設計、管理部分大型核電廠和數十座水力發電水壩之外，亦進行多個關鍵研究項目；隨後更榮升該公司工程部首席工程師兼總經理。他曾

經長期兼任世界銀行、聯合國發展計劃、亞洲開發銀行等多家國際發展機構的顧問，以及國際原子能機構與加拿大國際開發總署的專家顧問。為表揚他於工程界的傑出成就，李教授所獲殊榮包括 2001 年香港工程科學院院士銜及、2002 年加拿大工程院院士銜、2003 年中國工程院院士銜、2005 年美國富布爾特傑出學人獎。

中國內地江河數以千計，既是民生之本，也是苦難之源。近數十年來，消除災禍、善用資源的水利工程進行得如火如荼。自 1980 年代起，李教授應國家水利部之邀，一直以義務技術顧問身份，參與眾多有關項目；從可行性報告、工地評估、建築規劃，一直至項目完成，對三峽工程尤其貢獻良多。他在岩石力學方面的專長，對確保船閘的穩定性至關重要。數十年來服務內地的經驗，有助他全面掌握水旱成因。他主張生態恢復從河流上游做起、灌溉方法現代化，並參與植樹造林、環境教育等不同範疇的工作，成績斐然，定將垂範後世。李教授對國家貢獻多不勝數，屢獲殊榮，就連全國政協副主席兼前水利部部長錢正英，亦曾以「大禹傳人」四字相贈。此一美譽，李教授可謂當之無愧。

事實上，李教授卓然有成的工程事業，每多在荒郊野外開花結果。其足跡遍及偏遠荒山、凍原、森林。現今世代的年輕工程師，也許寧願安坐先進現代的辦公室，輕鬆通過電腦模型來從事研究工作，然而真正了不起的工程師，應如工程師出身的前美國總統胡佛所言：「往往經年在野外生活，寢不安席，寒風刺骨，炎陽炙人，更無家庭生活可言。」李教授為負起服務民眾的使命，在工程專業上事必躬親，不辭勞苦，曾經每週搭乘遠程航班，長時間舟車勞頓，有時甚至不惜冒生命危險，游走於隨時有失足墮崖之虞的棧道之間！

李教授身兼工程師、教育家、慈善家，對香港多所建樹，其中包括多項保障市民性命財產的削土坡工程。以泥釘加固土坡得以在香港廣泛推行，實有賴 1990 年代他領導的相關研究項目，其時他已重返其母校香港大學任職。1994 年，他獲委任為港大土木工程系教授；1998 年晉升系主任，2000 年出任該校副校長；並於 2008 年出任香港大學專業進修學院院長。直至 2005 年榮休之前，李教授在推動港大研究方面一直不遺餘力，發表國際學報論文 280 餘篇，並與中國內地以及海外各大學屢建策略性聯繫。

即使在百忙之中，李教授從來亦不忘慈善事業和公共服務，例如他以現任名譽主席及前會長身份服務的福慧慈善基金會，就一直大力支持在國內偏遠鄉村廣建中小學、特殊學校、孤兒院，以及醫院，並為各大學家境清貧的莘莘學子提供各類獎助學金。李

教授亦曾任共建維港委員會主席、香港獸醫管理局主席、衛奕信勳爵文物信託理事會主席、香港中華文化促進中心理事會主席，現任饒宗頤學術館館長。為表彰其對香港的卓越貢獻，特區政府更於 2003 年授予金紫荊星章。

身為虔誠佛教信徒，李教授通過在日常生活中修禪，而獲得力量、慈悲、安寧。「不為自己求安樂，但願眾生得離苦」一語，就曾助他安渡多番艱難險阻。他深信人與天地萬物原為一體、和睦融洽，並把個人體驗化入著作，啟迪大眾，提醒讀者在活得自在之餘，還須服務貧苦大眾。

校監女士，李教授不但在工程專業界成就非凡，更憑其岩土工程學專長與巧手一雙，造福廣大群眾，對於國內弱勢社群，貢獻尤多。為表揚其卓越功績，本人在此謹恭請校長引介李焯芬教授接受本大學的榮譽理學博士學位。

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英文贊辭由呂國輝教授撰寫及宣讀