Professor Elias Shiu Sai-wan
邵世運教授

Doctor of Science *honoris causa*
榮譽科學博士

The word "risk" is used colloquially in many different contexts. A simple search on Google Books Ngram Viewer shows that the use of the word "risk" has risen dramatically since 1970, with approximately a fourfold increase in usage since the 1950s. The mathematical concept of "risk" has a long-standing tradition in the world of insurance, which dates back to the mid-eighteenth century. Professor Elias Shiu Sai-wan is a pioneer of the modern risk theory in insurance, and has made significant contributions to the advancement of risk assessment and management. His groundbreaking research has helped reshape the understanding of risk and its implications for insurance companies.

Born and raised in Hong Kong, Professor Shiu is third in a family of five children. His father was a Cantonese language tutor, with many expatriate employees of HSBC among his students. Professor Shiu attended St Louis School in Sai Ying Pun from Primary Six to Upper Six. In 1967, he started his undergraduate degree at the University of Manitoba in Canada. One of the main reasons for choosing the University of Manitoba was that the tuition fee was only 325 Canadian dollars per year. Unbeknownst to him, the university also had the second oldest actuarial mathematics programme in all of Canada, which turned out to have a major impact on his life.

Professor Shiu received a BSc (Hons) degree and an MSc degree from the University of Manitoba in 1971. Motivated by an insatiable curiosity and a determination to explore the frontiers of mathematical theory, he went on to pursue his PhD in Mathematics at the prestigious California Institute of Technology (Caltech) in the US. During his time at Caltech, he conducted research in functional analysis, and earned his doctorate in 1975.

Professor Shiu has been teaching actuarial science for almost five decades. After Caltech, he returned to Winnipeg and became a professor of actuarial science at the University of Manitoba, as well as a consultant for the Great-West Life Assurance Company. In 1992, he joined the University of Iowa as Principal Financial Group Professor of Actuarial Science. Currently, he is the Director of Undergraduate Studies for Actuarial Science and a Collegiate Fellow in the College of Liberal Arts and Sciences.

Professor Shiu has earned an outstanding reputation as a scientific researcher. Co-authored with Professor Hans U Gerber, his paper "Option Pricing by Esscher Transforms" is the most cited paper ever published in the *Transactions of the Society of Actuari*es. This groundbreaking research has created a path for the cross-fertilisation of actuarial valuation and financial option pricing, facilitating the exchange of knowledge and ideas between these two vital fields.

The Gerber-Shiu function, named after Hans U Gerber and Elias Shiu, was constructed in another paper "On the Time Value of Ruin". The research provides a unified framework for the evaluation of a vast variety of risk quantities. It is one of the most important contributions in the fields of Risk Analytics and Actuarial Science. Biennial international Gerber-Shiu workshops have been organised around the world since 2006.

Professor Shiu is also an Honorary Editor for the journal *Insurance: Mathematics and Economics* and was a Co-Editor for the *North American Actuarial Journal*. He is an Associate of the Society of Actuaries and a corresponding member of the Swiss Association of Actuaries.

Throughout his distinguished career, Professor Shiu has been awarded numerous prizes and honours, including the Edward A Lew Award and four Halmstad Prizes. In June 2017, the University of Lausanne in Switzerland awarded him an honorary doctorate in actuarial science.

Despite living and working in North America for over half a century, Professor Shiu's heart remains deeply connected to his homeland, Hong Kong. From 2000 to 2004, he held the esteemed position of visiting Chair Professor of Actuarial Science in the Department of Applied Mathematics at The Hong Kong Polytechnic University. During his tenure, he played a pivotal role in the development of the actuarial science and investment programme curriculum for the department. He has also been a frequent speaker at various university seminars and conferences held in Hong Kong. He served on the Physical Sciences Panel of the University Grants Committee twice. At The Hang Seng University of Hong Kong, Professor Shiu is closely connected to the School of Decision Sciences. He is an Honorary Professor and provides advice on teaching and research development at the School.

Chairman, for his distinguished academic career, and for his contribution to the actuarial profession, as well as the advancement of science and technology at large, it is my honour and privilege to present Professor Elias Shiu Sai-wan to you for conferment of the Doctor of Science, *honoris causa*.

Citation written and delivered by
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「Risk」(風險)一詞意義多樣，廣見於日常各種語境。用Google Books Ngram Viewer稍為搜索一下，可見「risk」一詞在1970年起使用量急增，現時的出現頻率較1950年代多約四倍。保險方面，風險的數學概念由來已久，可追溯至十八世紀中葉。邵世運教授是現代保險風險理論的先驅，保險業的風險評估和風險管理得以長足發展，邵教授貢獻良多。邵教授科研創見甚豐，助學界重新理解風險，亦惠及保險公司的營運。

邵教授在香港土生土長，家中五個孩子中排行第三。父親從事語言教學，教外國人說粵語，其中不少為滙豐銀行的外籍員工。

邵世運教授在西營盤的聖類斯中學(小學部)和聖類斯中學完成小六至中七的學業，1967年負笈加拿大曼尼托巴大學。選擇曼尼托巴大學的主因是每年學費僅需325加元。論歷史悠久，該大學的精算數學課程是加拿大全國第二，而當時邵教授對此並不知悉，現在看來這個選擇對其人生實影響深遠。

1971年，邵教授取得曼尼托巴大學理學(榮譽)學士學位和理學碩士學位。邵教授熱衷探求學問，決意探索數學的前沿理論，其後在著名的美國加州理工學院繼續攻讀數學博士學位，期間研究泛函分析，並於1975年取得博士學位。

邵世運教授任教精算學近50載，自加州理工學院畢業後回到溫尼伯，獲委任為曼尼托巴大學精算學教授，同時擔任加衛人壽保險公司顧問。1992年，邵教授加入愛荷華大學，任美國信安金融集團精算學教授，現任精算學本科課程主任和文理學院院士。

邵教授從事科學研究，在學界聲譽甚隆，其與Hans U Gerber教授合著的論文〈Option Pricing by Esscher Transforms〉是《Transactions of the Society of Actuaries》期刊有史以來獲引用次數最多的論文。這項研究創了先河，讓精算估值和金融期權定價兩大領域相得益彰，促進知識和想法相互交流。

「Gerber-Shiu函數」構思於另一篇論文〈On the Time Value of Ruin〉，以論文作者Hans U Gerber教授和邵教授的名字命名。該研究提供了統一框架，以評估多種不同風險量，在風險分析和精算學兩個領域均為一大貢獻。2006年起，國際Gerber-Shiu研討會在世界各地舉行，為每兩年一次的盛事。

邵世運教授是學術期刊《Insurance: Mathematics and Economics》榮譽編輯、曾任《North American Actuarial Journal》聯合編輯，並為北美精算學會準精算師及瑞士精算學會通訊會員。

邵教授成就卓著，得獎無數，屢獲殊榮，包括Edward A Lew獎和四項Halmstad獎。2017年6月，邵教授獲瑞士洛桑大學頒授精算學榮譽博士學位。

邵世運教授雖於北美生活並工作逾半世紀，卻始終心繫香港這個故地。2000至2004年間，他在香港理工大學應用數學系任精算學訪問講座教授，期間為該系發展精算及投資課程出謀劃策，厥功甚偉。此外，邵教授經常在本港各種大學研討會和會議上演講，並曾兩度擔任大學教育資助委員會自然科學學科小組成員。邵教授與香港恒生大學決策科學學院淵源甚深，為學院榮譽教授，就教學和研究發展提供建議。

主席閣下，為表彰邵世運教授傑出的學術成就、對精算業和科技整體發展的卓越貢獻，本人謹恭請　閣下頒授榮譽理學博士學位予邵世運教授。

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