Professor Shiing Shen CHERN

Citation

"Not willing to yield to the saints of ancient and modern times / He alone ascends the towering height." This verse, written by Professor Wu-zhi Yang, the father of Nobel Laureate in Physics Professor Chen-Ning Yang, to Professor Shiing Shen CHERN, fully reflects the high achievements attained by Professor Chern during a career that has spanned over 70 years.

Professor Chern has dedicated his life to the study of mathematics. In his early thirties, he realized the importance of fiber bundle structure. From an entirely new perspective, he provided a simple intrinsic proof of the Gauss-Bonnet Formula and constructed the "Chern Characteristic Classes", thus laying a solid foundation for the study of global differential geometry as a whole.

In middle age, Professor Chern took the value distribution theory for holomorphic mappings and the study of minimal submanifold to a new level. At the age of 60, working with Professor J Simons, Professor Chern scaled even greater heights in the study of characteristic classes by constructing the Chern-Simons Invariant, which plays a pivotal role in the study of conformal field theory.

Just over a decade later, he won the Wolf Prize, the foremost international mathematics award, for his significant contribution to the field of differential geometry, which has affected the entire study of mathematics.

At the esteemed age of 92, Professor Chern is still working diligently to develop Finsler geometry and doing all he can for the cause of Chinese mathematics. In his own words, his objective is to bring about a situation in which "Chinese mathematics is placed on a par with Western mathematics and is independent of the latter. That is, Chinese mathematics must be on the same level as its Western counterpart, though not necessarily bending its efforts in the same direction."

Professor Chern was born in Jiaxing, Zhejiang Province in 1911, and displayed considerable mathematical talent even as a child. In 1930, after graduating from the Department of Mathematics at Nankai University, he was admitted to the graduate school of Tsinghua University. In 1934, he received funding to study in Hamburg under the great master of geometry Professor W Blaschke, and completed his doctoral dissertation in less than a year.

With a renewed subsidy from the Chinese Culture Foundation, Professor Chern went to Paris in 1936 to work with Professor É Cartan. In his poem "Ode to Chern", Mr Chen-Ning Yang wrote: "A piece of literature is meant for the millennium... Euclid, Gauss, Riemann, Cartan and Chern are all that count"—Yang evidently ranked Professor Chern amongst these great geometers of the ages.

At the outbreak of the War of Resistance Against Japan in 1937, Professor Chern returned to China. At Southwest Associated University in Kunming, life was extremely hard. But Professor Chern never slackened his efforts and the fruits of his research attracted worldwide attention. In 1943, upon the invitation of Prof O Veblen, Director of the Institute for Advanced Study at Princeton University, he

undertook research work and within two years accomplished two gigantic tasks—a simple intrinsic proof of the Gauss-Bonnet Formula and the construction of "Chern Characteristic Classes". These achievements opened up a new era for the study of differential geometry.

In the spring of 1946, Professor Chern founded the Mathematics Institute of Academia Sinica in Shanghai, training a contingent of talented scholars who became core members of China's mathematical elite. Subsequently, he was elected to Academia Sinica as its first and youngest fellow. Towards the end of 1948, at the invitation of the Institute for Advanced Study at Princeton, Professor Chern and his whole family emigrated to the United States where he was appointed a professor at the University of Chicago.

Accepting a teaching post at the University of California at Berkeley in 1960, Professor Chern soon developed Berkeley into a geometry and topology center to which all geometers without exception would pay pilgrimage. His success was such that in 1975, he was awarded the US National Medal of Science and became the founder and first director of the Research Institute of Mathematics, established at Berkeley in 1981 by the US National Natural Science Foundation. In 1984, Professor Chern was invited by China's Ministry of Education to return to his alma mater, Nankai University, and created the Nankai Research Institute of Mathematics—which he built into a world mathematics center within 20 years.

Professor Chern takes great pleasure in supporting the younger generations. He has acted as a supervisor for over 40 doctoral dissertations, and mathematics legends have benefited from his guidance and help. He is a genial, amiable and affectionate man who teaches not only by precept but also by example. He has made great contributions to mathematics in China and the world. In a poem dedicated to his teacher, Professor Shing-Tung Yau wrote of Professor Chern: "The mighty river flows on / Washing the tassels of my headgear / Green mountains tower to the skies / Broadening my vision and mind / You teach us to cherish the old / While exploring what is new and unknown / Admirable are your graces and virtues / Which will live through the ages for ever."

Mr Pro-Chancellor, I have the honor to present to you, on behalf of the University, Professor Chern, renowned mathematician and winner of the 1984 Wolf Prize, for the degree of Doctor of Science *honoris causa*.

Chinese Citation written by Professor Shiu-Yuen Cheng.