THE CHINESE UNIVERSITY OF HONG KONG

TWENTY-NINTH CONGREGATION

Conferment of the Degree of Doctor of Science, honoris causa

A Citation

Dr Charles Kuen Kao, FIEEE, FIEE

Dr Charles Kuen Kao is a pioneer in the field of optical fiber communication technology and has contributed greatly to developments in this area of research through his conceptual and comprehensive analytical scientific studies. The practical value of this work is evident from the fact that the optical fiber's message-carrying capacity is over two hundred times greater than that of copper cable, the other most commonly used material in telecommunications. There are, in addition, other advantages to optical fibers which assure their future in the commercial as well as scientific world.

Born in Shanghai, Dr Kao received his higher education at the University of London from which he gained his BSc and his PhD in electrical engineering.

During his professional career Dr Kao has served at various times as Development Engineer, Principal Research Engineer, and Chief Scientist and Director of Engineering for leading telecommunication concerns in England and the United States. Possessor of an inventive mind, Dr Kao recognized, shortly after beginning his studies of optical fiber communication, that modulated light, guided in glass fiber, could be used as a wideband transmission medium. His work since then has resulted in twenty-nine patents and numerous technical publications which are significant for making possible commercial development of optical fiber communication systems.

From 1970 to 1974, Dr Kao was a faculty member of the Department of Electronics at The Chinese University of Hong Kong. As Professor of Electronics, he was instrumental in helping to establish a major programme in the young Department.

Dr Kao is a fellow of leading institutions of Electronics and Electrical Engineering in the United Kingdom and the United States. He has received eight awards since 1976. We can find some indication of the scope of his contributions from the citations for these awards:

1976 - The Morey Award from the American Ceramic Society was for "outstanding contributions to glass science and technology"

1977 - The Steward Ballantine Medal by the Franklin Institute was for "his conceptual work on optical fiber communication systems"

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1978 - The Rank Prize for Opto-Electronics of the Rank Trust Funds of England was for "his pioneering work on optical fiber communication"

1979 - The IEEE Morris Liebmann Memorial Award was for "making communication at optical frequencies practical by discovering, inventing, and developing the material, techniques, and configurations for glass fiber waveguides"

1979 - The L.M. Ericsson International Prize was for "fundamental contributions to the long-distance transmission of information through optical fibers"

1980 - The AFCEA Gold Medal was in recognition of "his contribution to the application of optical fiber technology to military communications"

1984 - The Eleventh Marconi International Fellowship was for "contributing to a revolution in communication technique in the form of optical fiber technology"

1985 - The IEEE Alexander Graham Bell Medal was for "pioneering contributions to optical fiber communications"

In our technically orientated society, people are dependent upon rapid communication to which Dr Kao's scientific work has made significant contributions. To this day, however, communication among scientists regarding their research findings is still effected through the written word, and Dr Kao has also contributed to this somewhat slower form of communication by serving as Associate Editor of the Journal of Quantum Electronics, Associate Editor of Optics Letters, and as a member of the Editorial Board of the Journal of Optical Communications.

In recognition of his outstanding achievement in the field of optical fiber communication which will continue to have a profound effect upon communication systems and thus upon the lives of all of us, Mr Chancellor, I request Your Excellency to confer on Dr Charles Kuen Kao the degree of Doctor of Science, honoris causa.

October 17, 1985