Kunapuly Venkateswarlu (1916–2005)

One of the last icons of the Raman–Bhagavantam school of molecular spectroscopists, Kunapuly Venkateswarlu breathed his last on 2 July 2005. Born on 6 June 1916 at Nuzvid, Andhra Pradesh, he passed M Sc in Physics in 1939 from Andhra University, securing first class and the first rank and winning the Metcalf Gold Medal. In 1939 he was awarded D Sc for his research in Physics. A long and chequred career awaited him at several academic institutions. For about nine years, starting 1939, he served Andhra University in various capacities as a teacher. During 1948–50, as a Madras Government Overseas Scholar in Geophysics, he got trained at Cambridge University, California Institute of Technology and in US Geological Survey. On his return to India he was appointed special officer for groundwater resources by the government of Madras. After a two-year stint in that job, he joined Annamalai University as Reader in Physics. Shortly afterwards, he was made the Professor and Head of the Department of Physics of that University. After about 7 years of illustrious service there, he received an invitation from Kerala University to be the Founder Professor of its Physics Department which was being set up at its Ernakulam centre (now CUSAT). Under his leadership that department earned reputation as a centre of advanced research in many areas. He moved to PSG College of Arts and Science in 1969 as Postgraduate and Research Professor in Physics, a post he held with distinction for two years. He was a visiting professor of Physics at Florida Institute of Technology, USA, from 1981 to 83. In between he served as visiting professor at different institutions in India and abroad. He visited many institutions in countries such as Belgium, Germany, Norway and USA. From 1983, he had been living almost as a recluse at Coimbatore, till his death.

The late S. Bhagavantam was Venkateswarlu's mentor. There is even a joint paper by them on the scattering of light in single crystals, published as early as 1944 in *Proceedings of Indian Academy of Sciences*. His most important piece of work of his pre-doctoral days is on the temperature effect in Raman line intensities in crystals, which showed for the first time that the traditional Placzek theory is inadequate in explaining the high temperature behaviour. During his initial years as

a demonstrator in physics, he conducted several investigations on ultrasonic velocities in organic liquids; which provided the spring board for elaborate investigations by his school in later years. In 1955, he launched a programme of determination of harmonic force constants of molecules and radical species. He and his students have investigated the General Valence and Urey–Bradley force fields of hundreds of systems. They found that while bond stretching force constants exhibited a fair degree of characticity, others such as bending, twisting and interaction constants are sensitive to the bond environment. Later he extended his work to the calculation of additional constants such as mean amplitudes, Coriolis coupling coefficients and rotation distortion constants. Such studies are relevant to the problem of elucidating molecular structure. As most of these computations were performed either in the pre-computer era or during the early years of development of computer technology, one must appreciate the enormity of the numerics involved. The parameter representation developed by his school came in handy for making use of additional data in force field analysis.

Despite his deep involvement in computational physics, he was at heart an experimental physicist of classic distinction. He directed studies on magnetic susceptilities, ultrasonic velocities and even X-ray diffraction. During his tenure as a geophysicist he carried out an extensive ground water survey of Tamil Nadu using the resistivity method.

Venkateswarlu trained over two dozen Ph Ds and numerous M Scs. in Physics. Many of them rose to responsible positions in the educational or administrative field. He was responsible for building the Physics department at Annamalai University from its fledgeling state. Like Prometheus who brought fire to the earth, he brought serious Physics to Kerala and initiated research activities. An outstanding teacher with a penchant for simple and direct presentations, he radiated considerable charm and warmth which endeared him to his students. He is survived by his two sons who are in the engineering profession and two daughters who are housewives.

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