

## S. V. Subramanyam (1943–2015)

Somenahalli Venkatesarao Subramanyam, a champion crusader for improving science education in schools and colleges in all the remote parts of Karnataka passed away peacefully on 1 August 2015.

He was born on 3 September 1943 in Somenahalli village, Kolar District, Karnataka to middle-class parents. His early education was in Kolar and Bengaluru, where he got the gold medal of the Mysore University in his M Sc programme. He was immediately appointed lecturer of physics in National College, Bengaluru, founded and nurtured by H. Narasimhaiah, a Gandhian in principle and practice. A year later in 1965, Subramanyam joined the Department of Physics, Indian Institute of Science (IISc), Bengaluru, for his Ph D. He obtained a Ph D in 1969 for his work on binary liquids, largely the hydrodynamic aspects in relation to emulsion formation. He was appointed a lecturer in the Department in 1970 to take part in the teaching activities associated with the new M Tech programme. In 1972, he went to the Clarendon Laboratory, University of Oxford, UK, under a Commonwealth Academic Staff Fellowship for a year. He was promoted to an Assistant Professorship in 1976, Associate Professorship in 1981 and to a full Professorship in 1986. He retired from IISc in July 2004.

Gaining experience in liquid helium level low temperature physics in the University of Oxford, Subramanyam started work on applying low-temperature measurements to the newly emerging class of materials, namely quasi one-dimensional electrical conductors and electrically conducting polymers. Along with his students, he synthesized not only the TTF-TCNQ class of materials which had been studied by others, but also a range of new organic crystals and doped polymers. In addition to measurements at low temperatures, he also applied high-pressure techniques using tungsten-carbide Bridgman anvils to reach 80,000 atmosphere pressure. This combination of two hard experimental techniques resulted in a number of outstanding publications. In those days of limited research funding, the apparatus was fabricated locally in the departmental workshop. Readymade professional pieces of equipment were not available even internationally at that time in these

areas of work. So this ability to prepare the materials, to make measurements (all with locally fabricated pieces of equipment) and to interpret the results in the light of the contemporary theoretical and experimental knowledge put him in a lead position. The same combination of skills was used in the later studies on



nonlinear behaviour, electrical switching phenomena, carbon materials, superconductors and super-hard materials. Twenty-two students got their Ph Ds under his guidance. He wrote over 100 scientific papers in various journals, and edited two books – one on high-pressure studies and the other on superconductors.

Quite early in his career, Subramanyam felt that it was his duty to improve science teaching in schools and colleges, especially in the remote areas which did not have the advantage of access to the better institutions situated in urban areas. The University Grants Commission (UGC) had approved a small programme of UGC Extension Lectures in the early 1970s. Armed with a small portable domestic 35 mm slide projector, a cane as a pointer and white dhoties as the screens, visits were regularly made to many schools in the remote areas, most of the time by buses and, for the last leg of the journey, by cycles and horse-drawn carriages. Over the years, better resources and technologies were available, but the situation for travel did not improve in any comparable manner. In all, Subramanyam had given about a 1000 lectures in various schools and colleges. In addition to students, the teachers were also trained. The IISc team witnessed enthusiastic response and had to be diversified into physics, chemistry, biology and mathematics streams. Subramanyam wrote a dozen books for the students in Karnata

taka schools and also took part in the editorial work of the NCERT textbooks.

In addition to the teaching interests, Subramanyam also had a conviction that one must discharge the institutional responsibilities as well, a trait he imbibed from his mentors, H. Narasimhaiah and R. S. Krishnan. Thus he was a readily available staff member for many duties in the Department and the Institute. He served as the Chairman of the Cryogenics Facility, and Chairman of the Division of Physical Sciences besides his position in the Department of Physics. He worked with great dedication in the Materials Research Society of India in various capacities, being a regular participant in the annual meetings.

Not surprisingly, Subramanyam was recognized in selected circles and awarded many distinctions. He held the IISc–MSIL chair for three years. In 1991, he was elected a Fellow of the Indian Academy of Sciences. He was awarded the Gold Medal of the MRSI and honoured by the Karnataka State Council for Science and Technology. He was a member of many professional societies. He never once felt dejected that he would have won more honours and recognitions if he had diverted his time, spent on teaching roles, to personal research tasks in IISc. Indeed he held the view that the current practice of putting all eggs in one basket of research publications for various purposes of assessment is at best a short-term solution, which would be counter-productive in the long run. He wished that institutions would give roughly equal importance to teaching, research and industrial activities.

A little after superannuation from IISc, Subramanyam had a fall, which put an end to his travel all over Karnataka for interacting with school children. He obviously felt unhappy at this twist of fate, but bore his handicap stoically with fortitude. He is survived by his wife, a son, two daughters and grandchildren. In addition to his colleagues, countless school children who benefited from his teaching, will also remember him with gratitude.

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