

universities, state awards and the honour of chairing various committees. But what is more enduring is the love and warm-hearted affection inside him for the multitude of his adoring and admiring research students, colleagues and friends. A profound signature of that intrinsic feeling of Sinha is most aptly captured by the follow-

ing quotes of two stalwart poets of whom Bikash was an avid reader:

*As long as there is one heart on Earth
where I still live, my memory will not die.*

– Alexander Pushkin

*My love for this world is the only truth, a
gift of my birth. As I depart, this indelible*

truth would push death to oblivion.

– Rabindranath Tagore

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J. Gopalakrishnan (1944–2023)

Jagannatha Gopalakrishnan (JG) was born in 1944 in Villupuram, Tamil Nadu, India. He earned his B.Sc. and M.Sc. degrees from Madras University and Ph.D. from Indian Institute of Science (IISc), Bengaluru. Soon after, he joined the Chemistry Department faculty at the Indian Institute of Technology, Madras. In 1977, JG joined the newly founded Solid State and Structural Chemistry Unit at IISc.

JG contributed immensely to Preparative and Structural Solid-State Chemistry with emphasis on the synthesis of non-molecular solids (especially metal oxides), development of a general chemistry-based (*Chimie douce*) approach for the synthesis of metastable inorganic solids alongside a rational synthesis of extended inorganic solids. He employed a variety of inorganic solids and their solid solutions as precursors and transformed them to the desired products using appropriate chemical reactions, namely dehydration, decomposition, reduction/oxidation, atom insertion/extraction and so on. His work on many d^0 -metal oxides has led to recognition of second order Jahn–Teller effect in the formation, structure and properties of d^0 -oxides. He pursued a unit-by-unit assembly approach through appropriate metasynthesis to build novel inorganic architectures with targeted materials properties. JG authored in excess of 400 publications and his book with Prof. C. N. R. Rao on *New Directions in Solid State Chemistry* is highly acclaimed. He was a Senior Fellow at the AvH Foundation (Humboldt), Germany. He spent a year as a Visiting Scientist at Dupont CR&D, Wilmington, USA. He also spent a year as Visiting Professor at the University of Maryland, USA.

Early in his academic career, JG recognized that synthesis, the art of creating new

substances, be they discrete molecules or extended solids, would remain as the major forte of solid-state chemistry. He strongly believed, 'if room-temperature superconductors or synthetic bacteria are ever created, it will not be physicists and biologists



who will make them!'. He passionately pursued the role of structural inorganic chemistry in the quest for new materials with technological applications. In his own words, 'while the discipline of chemistry as a whole plays a crucial role in this quest – physical chemistry, for instance, helps resolve issues like stability versus metastability/thermodynamics versus kinetic control of synthesis, inorganic chemistry, by its very nature of being the chemistry of all the elements and their compounds, is of special significance in the quest for new materials, for the simple reason that almost all the new materials that are sought are extended inorganic solids, mostly oxide materials comprising transition and non-transition elements'. He always recognized the need for a sound knowledge of the chemistry of both transition and non-transition elements to practice high quality materials synthesis. Throughout his career,

he judiciously combined his vast knowledge in structural inorganic chemistry with fundamental inorganic concepts such as acidity/basicity, redox reactions, crystal field theory, Jahn–Teller distortions, mixed valence, electron transfer and metal–metal bonding to design new nonmolecular solids. JG was a voracious reader with exceptional memory and had an unusual ability to relate structures that are not obvious. He successfully employed his strength to generate new synthetic methodologies. His selected papers include: Metathetic route (*J. Am. Chem. Soc.*, 2000, **122**, 6237–6241); Ion exchange reaction (*J. Am. Chem. Soc.*, 2000, **122**, 6237–6241; *Mat. Res. Bull.*, 1987, **22**, 413–417); Oxidative deintercalation (*Chem. Mat.*, 1992, **4**, 745–747); Bronsted acidity (*Inorg. Chem.*, 1995, **34**, 3760–3764).

JG served as an Editorial Advisory Board Member for *Chemistry of Materials*, an ACS Journal, which provides testimony to his international academic standing. He was a Fellow of the Indian Academy of Sciences, Indian National Science Academy, and National Academy of Sciences. He also received several awards.

JG was a dedicated teacher, a sought-after mentor, and a brilliant yet humble scientist. His death on 19 July 2023, has created a huge vacuum in the field of Materials Chemistry in the country.

JG was a loving father and is survived by his wife and daughter.

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