

# Curriculum Vitae

## GAUTAM R. DESIRAJU

Solid State and Structural Chemistry Unit, Indian Institute of Science  
Bangalore 560 012, India

University of Petroleum and Energy Studies, Bidholi, Dehradun 248 007, India

**Born** 21 August 1952, in Madras, India

### Education

B.Sc.	St. Xavier's College, University of Bombay	1972
M.S.	University of Illinois, Urbana	1974
Ph.D.	University of Illinois, Urbana	1976

**Research interests** Crystal engineering  
Hydrogen bonding  
Structural chemistry

### Positions held

Research Scientist	Eastman Kodak, Rochester	1976-78
Research Fellow	Indian Institute of Science	1978-79
Lecturer	University of Hyderabad	1979-84
Reader	University of Hyderabad	1984-90
Visiting Scientist	E. I. Dupont de Nemours CR&D	1988-89
Professor	University of Hyderabad	1990-2009
Dean	University of Hyderabad	1999-2002
Professor	Indian Institute of Science	2009-2018
Honorary Professor	Indian Institute of Science	2018-2023
Professor Emeritus	Indian Institute of Science	2023-present
Distinguished Professor	UPES	2023-present

### Publications

Three scientific books, three edited books and ~475 research papers. H-index = 105. Six books outside of the formal scientific literature.

### Summary of Research

He has made seminal, wide-ranging and original contributions in **Crystal Engineering**, a subject that intersects organic chemistry, supramolecular chemistry, X-ray crystallography and materials research. This subject may be divided into three distinct parts: (1) Study of intermolecular interactions; (2) Development of retrosynthetic strategies towards molecular crystals; (3) Design of crystals with novel physical and chemical properties. He has made significant contributions to each of these areas.

## Crystal Synthesis

The central problem of crystal engineering is the lack of a general correspondence between molecular and supramolecular structure. Molecular properties are modular and can be described in terms of functional groups. In contrast, supramolecular properties are emergent and are a complex convolution of molecular structure. It is possible to select molecular systems wherein the supramolecular construction may be made modular, and this phenomenon has been termed “structural insulation”. Under these conditions, ideas of retrosynthesis may be applied, and borrowing from E. J. Corey’s concept of a molecular synthon, he proposed the concept of a **supramolecular synthon** in crystal engineering in 1995 in *Angewandte Chemie*. This concept gained wide acceptability in the 30 years since it was proposed, with more than 5000 citations. A follow-up review in 2007, also in *Angewandte Chemie*, considers a molecular crystal as a holistic ensemble of intermolecular interactions.

## In Summary

Gautam Desiraju has played a major role in the development and growth of the subject of crystal engineering. He is noted for gaining acceptance for the theme of weak hydrogen bonding among chemists and crystallographers, and especially how weaker bonds enable a wide range of properties in molecular crystals. His books on crystal engineering (Elsevier, 1989; World Scientific, 2011) and the weak hydrogen bond in structural chemistry and biology (OUP, 1999) are particularly well known. He is a highly cited scientist with more than 475 research papers, 80000+ citations and an h-index of 105. He has won international awards such as the Alexander von Humboldt Forschungspreis, the TWAS award in Chemistry, the ISA medal for Science of the University of Bologna and the van der Waals prize of ICNI, Strasbourg. He has guided the Ph.D work of around 35 students and mentored around 70 post-doctoral associates. He is a member of the editorial advisory boards of *Chemical Communications* and the *Journal of the American Chemical Society*, and a former member of the editorial advisory boards of *Angewandte Chemie* and *Accounts of Chemical Research*. He is a former President of the International Union of Crystallography and the founding chair of the Gordon Research Conference on Crystal Engineering. He is a recipient of an honorary doctorate degree from the Universidad Nacional de Córdoba, Argentina, Rayalaseema University, Kurnool and Gulbarga University, Kalaburagi. He was awarded the Acharya P. C. Ray Medal (2015) of the University of Calcutta for innovation in science and technology.

His books “Bhārat: India 2.0” and “Delimitation and States Reorganization” are outside the scientific domain and are concerned with the constitutional history of India and its re-imagination as Bhārat, a civilisational state rather than a nation-state as has been understood till now. Three forthcoming books in 2025 and connected with science are “India’s Supply Chains in a World at War”, “Fixing Science in India: A Socio-Economic Prescription” and “India: Science, Politics, Geostrategy: A 30 Year Thought Journey”. His scientific autobiography entitled “Crystal Clear. Engineering Complexity” will be released in mid-2026 in the series “Lives in Chemistry” published by the History of Chemistry Division of the German Chemical Society (GDCh).