SMC-Foundation Day Lecture-2025

Organized by

Society for Materials Chemistry (SMC), *C/o Chemistry Division, BARC, Mumbai*

Professor U. Kamachi Mudali, FNAE, FNASc

Vice Chancellor, Homi Bhabha National Institute (HBNI)

Formerly Chairman and Chief Executive, Heavy Water Board

Title: *Understanding Indian Critical Minerals Scenario Impacting Development of Advanced Technologies by Viksit Bharat and Beyond*

Date/Day	:	**9th August 2025, Saturday**
Time	:	**11:00 hrs**
Venue	:	**Multipurpose Hall, Training School Hostel, Anushaktinagar, Mumbai**

Program

Welcome	:	***Prof. A. K. Tyagi***
Introduction of Speaker	:	***Prof. A. C. Bhasikuttan***
SMC Foundation Day Lecture	:	***Prof. U. Kamachi Mudali***
Vote of thanks	:	***Dr. Sandeep Nigam***

All are cordially invited

Please join for tea at 10:30 h before the lecture

(Abstract and speaker`s profile overleaf)

Prof. A. K. Tyagi
President, SMC

Abstract

Title:

Understanding Indian Critical Minerals Scenario Impacting Development of Advanced Technologies by Viksit Bharat and Beyond

Critical minerals are those specific minerals that have strategic importance in high-tech application and economic development of a nation in defense, industry and energy, but their resource is limited and at risk due to geopolitical constraints. Uninterrupted supply of critical minerals is essential to the growth of Indian technology and economy by Viksit Bharat 2047 and beyond, meeting the sustainability development goals, and transitioning to a low carbon future. To build competitive value chains in India, the discovery of mineral wealth and identifying critical minerals for the acquisition and preservation of such mineral assets considering the long-term need of the country towards development of advanced technologies including energy security. Towards self-reliance, India is marching ahead and establishing policy changes and development of indigenous advanced technologies in the critical minerals supply chain. The presentation focuses on the recent developments in critical minerals scenario and the preparedness of the nation towards meeting the requirements for the advanced technologies in the future till Viksit Bharat and beyond.

About the speaker

Prof. U. Kamachi Mudali is the Vice Chancellor of Homi Bhabha National Institute (HBNI), a deemed to be University , Department of Atomic Energy (DAE), Mumbai. He was earlier Vice Chancellor of VIT Bhopal University, Sehore (2021-23); Honorary Professor of Practice, IIT Madras (2021-22); and, Chairman & Chief Executive of Heavy Water Board (HWB), Mumbai (2017-2020). As an accomplished team leader, he has displayed excellent leadership at HWB for the production of heavy water and specialty materials by managing seven plants located at different parts of country. Prof. Mudali is a Distinguished Alumnus of both IIT Bombay & PSG College of Technology, Coimbatore, and an Adjunct Professor of Institute of Chemical Technology, Mumbai & PSG Institute of Advanced Studies, Coimbatore.

Prof. Mudali joined DAE in 1984 at the Indira Gandhi Centre for Atomic Research, Kalpakkam, and held many leadership positions upto 2017, including the Director, Materials Chemistry & Metal Fuel Cycle Group. He is a globally renowned researcher and has made pioneering contributions to: development of advanced materials & coating technology for aggressive environments; corrosion science, engineering and technology of materials used in nuclear industry; non-metallic materials, process and equipment development for aqueous & pyrometallurgical reprocessing plants; failure analysis, consultancy, metallic heritage and societal applications.

Prof. Kamachi Mudali's research achievements are evident from around 500 journal papers, 25 edited Books, 5 patents, around 350 invited presentations, h-index 57 and i-10 index 315. Dr. Mudali is recognised in the World's Top 2% scientists in the field of Materials from India, and is decorated with many distinguished recognitions, including: Life Time Achievement Award & Metallurgists of the Year Award from Ministry of Steel, Govt. of India; GD Birla Gold Medal and Platinum Medal from the Indian Institute of Metals; Homi Bhabha Science & Technology Award & Group Achievement Award (5 times) from DAE; Gold Medal from Society for Materials Chemistry & Chirantan Rasayan Sanstha (CRS); ONGC Excellence & Meritorious Contribution Awards in Corrosion, from NACE India & NCCI, Karaikudi; Mascot National Award & Life Time Achievement Award from Electrochemical Society of India, Bengaluru, VASVIK Award; Indian Nuclear Society Medal; AICTE-INAE Distinguished Visiting Professor of INAE; and, Frank Newman Speller Award 2019 of NACE International, USA, the first Indian to receive, for outstanding contributions in Corrosion Engineering. Prof. Mudali was a Trustee of ASM International, USA (2021-2024), and a Fellow of: ASM International, USA; NACE International, USA; Asia Pacific Academy of Materials, China; International Federation of Heat Treatment & Surface Engineering, Switzerland; Indian National Academy of Engineering; National Academy of Sciences India; Indian Institute of Metals; Indian Institute of Chemical Engineers; Academy of Science, Chennai; Institution of Engineers (India); Indian Chemical Society; Honorary Fellow, Electrochemical Society of India; and a Honorary Member of both UDCT Alumni Association, ICT Mumbai & Indian Institute of Metals, Kolkata.