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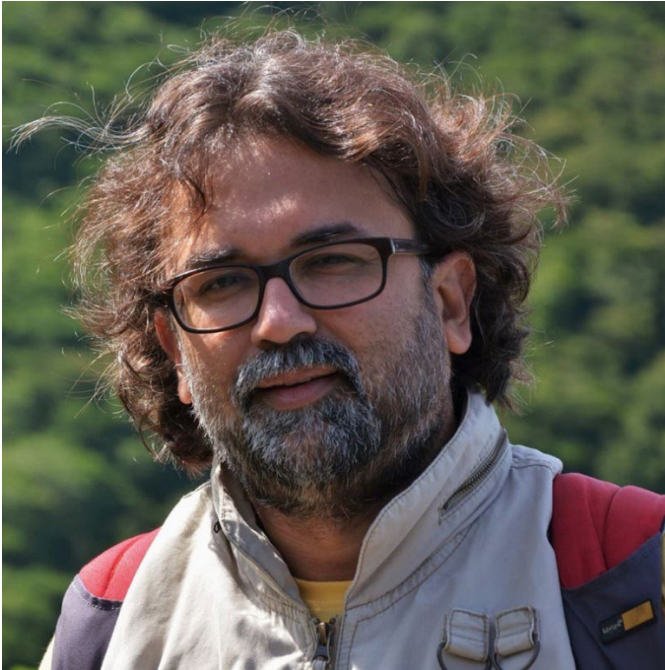
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Professor Sameer Khandekar - Obituary



Professor Sameer Khandekar, chair professor at IIT Kanpur passed away at the age of 52 on December 22, 2023 on stage while delivering a speech at an alumni meeting on IITK campus. His tragic death was shocking for his family and his friends and colleagues. This is a big loss for IITK, the Indian heat and mass transfer community and the international heat pipe community.

Professor Khandekar was born on November 10, 1971 in Jabalpur, MP, India. After his undergraduate studies in mechanical engineering at Government Engineering College, Jabalpur, where he received his B.E. degree in 1993, he worked as a marine power plant engineer on board sea-going merchant ships for 4 years (1994-1998). Thereafter he pursued a M.Tech. program at IITK from 1998-2000 with specialization in thermo-fluid engineering. After obtaining his M.Tech. degree he worked for a doctoral degree at Institute of Nuclear Technology & Energy Systems, University Stuttgart, Germany from 2000-2004. He graduated “summa cum laude” with his groundbreaking dissertation on thermo-hydrodynamics of pulsating heat pipes.

He returned to India, where he started his brilliant academic career at IITK as assistant professor in 2004. In 2009 he was promoted to associate professor and in 2014 to professor; he was holding the Sir M. Visvesvaraya Chair since 2018. At IITK he took over the Refrigeration and Air Conditioning Laboratory and developed it to a formidable thermal laboratory with cutting edge experimental equipment. He pursued experimental and theoretical research with focus on phase-change thermofluidic systems, including evaporation, boiling, condensation, heat pipes. He made major contributions to the

- understanding of the complex thermo-fluidics in pulsating heat pipes, e.g. study of thermo-hydrodynamics of phase-change induced Taylor bubble flows, numerical modeling of pulsating heat pipes
- experimental investigation and modeling of pulsating and loop heat pipes for terrestrial and avionics applications
- dropwise condensation in the presence of vapor, condensation of steam-hydrogen mixtures inside closed environments, local heat transfer coefficient during film condensation of

steam-hydrogen mixtures, micro droplet formation on textured surfaces, (all with respect to simulation of severe nuclear accident scenarios)

Besides fundamental studies he was strongly engaged in national and international R&D projects on the application of loop heat pipes, pulsating heat pipes and two-phase thermosyphons in thermal energy systems for terrestrial and avionic applications. His most recent projects dealt with thermosyphon-based passive interfacial solar steam generation for high-productivity desalination and engineering fibers for fog harvesting and interfacial solar water purification.

In addition to his scientific research, Professor Khandekar was extensively active in teaching. His eight undergraduate and four graduate lecture courses comprised the topics conduction & convection, refrigeration & air conditioning, thermodynamics, microscale heat transport, internal combustion engines, fluid mechanics & rate processes, heat & mass transfer, liquid-vapor phase-change technologies, boiling & condensation, condensation & radiation, energy conversion systems, nuclear power engineering, communication skills. He also was instructor for the technical arts laboratory and the heat transfer laboratory.

Beyond his teaching activity at IITK, Professor Khandekar gave various lecture courses and short-term courses on a national and international level. Among others he lectured on heat pipe science & technology as invited professor at Federal University of Santa Clara, Florianopolis, Brazil (2005), at the Heat Pipe Laboratory of University of Chiang Mai, Thailand (2006) and Korean Advanced Institute of Science & Technology, Daejeon (2014). He gave courses on Industrial Heat Transfer Systems with Phase-Change for industry participants in Mumbai and Delhi (2008, 2009). And he gave pre-conference short courses at the international ISHMT conferences in Hyderabad (2017) and Roorkee (2019).

Professor Khandekar supervised 15 B.Tech. projects with 49 students, 62 M.Tech. theses and 13 PhD theses.

The results of his research work led to 10 patents and a substantial number of publications: 110 archival refereed papers in international journals and 115 refereed conference papers. He also authored 5 books and 6 book chapters.

Professor Khandekar was present at and contributed to more than 50 conferences, seminars and workshops, among them 12 international conferences on heat pipes. He gave over 15 keynote / invited lectures at international or national conferences.

Professor Khandekar was very active in international scientific collaboration. In 2011, he stayed as DAAD Research Fellow at Institute of Technical Thermodynamics, Technical University of Darmstadt, Germany. Special mention should be made to the close collaboration with CETHIL at INSA-Lyon, France on pulsating and loop heat pipes, where he also spent 2 extended visits in 2012 and 2018. Other connections with accompanying visits were with University of Pisa, Italy (2018), Kutateladze Institute of Thermophysics, Russian Academy of Sciences, Novosibirsk (2017, 2018, 2019), Huazhong University, Wuhan and Xian Jiaotong University, Xian, China (2018).

Professor Khandekar's academic achievements are numerous. Among them is the Young Scientist Award by the Department of Atomic Energy, Government of India which he received in 2005. He became member of the scientific senates of Indian Institute of Information Technology, Design & Manufacturing, Jabalpur (2006-2012) and IITK (2006-2007), received the P. K. Kelkar Research Fellowship from IITK (2009-2012), the Prof. K. T. Seetharaman Young Researcher Medal and Prize from the IHMT Society (2010), became Fellow of Indian Institute of Engineers (2016), Sir M.

Visvesvaraya Chair Professor at IITK (2018), Fellow of the Indian National Academy of Engineers (2019), received the Excellence in Teaching Award from IITK (2020).

Besides numerous duties at IITK, on department and institute level, he acted as Associate Dean for Innovation and Incubation and coordinator of the SIDBI Innovational and Incubation Center of IIT Kanpur (2015-2017), Head of Department (2020-2023) and was acting as Dean of Student Affairs (2023) and as Chairman of the Committee for establishment of a School of Entrepreneurship at IITK. On a national level, he was member of various committees, among others Visitor's Nominee to all NITs, (2017) and to IIT Dharwad (2023), Executive Member of IHMT Society, Reviewer of DRDO projects.

In 2007, at the 14th International Heat Pipe Conference (IHPC), Prof. Khandekar was awarded the prestigious George M. Grover Young Scientist medal for outstanding contributions to heat pipe science and technology. In the same year he was invited to the IHPC Committee as representative of the Indian heat pipe community. In 2013 he organized the 17th IHPC (40 years jubilee conference) at his alma mater. In 2023 he was elected as Chairman of the Committee (since 2016: Committee on Joint International Heat Pipe Conferences & Symposia).

Professor Khandekar was Associate Editor of International Journal of Thermal Science and of Interfacial Phenomena & Heat Transfer.

Prof. Sameer Khandekar joined the editorial board of the International Journal of Thermal Sciences in 2018 as an Associate Editor and was serving in this role till his untimely death. He was associate editor specially in charge of papers on heat pipes, micro channel flows and also on boiling, condensation and two-phase flows. He maintained very high standards and professionalism in the conduct of reviews and was a great asset to the journal and was never afraid of calling a spade a spade. He has also contributed enormously to the journal as an author of high-quality research papers in his areas of expertise.

Besides all his research activities and teaching and administrative duties, Professor Khandekar was also strongly engaged in social and educational matters, specifically in Shiksha Sopan, a voluntary organization run by the IITK community working for children and youth of the socially/economically backward society around the IITK campus. He was Treasurer (2008-2011, again from 2021) and President (2005-2008, 2018-2020) of this organization. During a sabbatical year in 2023/2024, he had especially planned to concentrate his efforts on Shiksha Sopan affairs.

Professor Khandekar was not only engaged in science and social affairs. He had also a deep affection for culture. He loved Indian classical music, dance and theater. He wrote poems in Hindi and he was the major character in an Indian drama performed by IITK faculty at IITK's Diamond Jubilee in 2019.

Professor Khandekar is survived by his wife Pradnya and his son Pravah.

On behalf of the Committee on Joint International Heat Pipe Conferences & Symposia

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