

Workshop
on

Smart Materials for Cancer Therapy in AI Era

SMCT-AI
2025

January 21, 2025

Indian Institute of Technology
Kharagpur
Kharagpur-721302, India



Organized by

School of Medical Science and Technology
IIT Kharagpur

In collaboration with
University of Bradford, United Kingdom

Venue: Prof. S. N. Bose Auditorium
Academic area, IIT Kharagpur

Under the aegis of
SPARC Program (MHRD, Govt. of India)



 **SPARC**
Scheme for Promotion of Academic and Research Collaboration



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This workshop provides a platform for researchers to explore advancements in artificial intelligence and its interdisciplinary applications, particularly in healthcare and materials science. It emphasizes AI's transformative role in addressing challenges like designing targeted drug delivery systems for cancer. Key topics include AI-based pharmacophore modeling, chemoinformatics, and advanced deep learning techniques such as Graph Neural Networks and autoencoders. These approaches aim to revolutionize drug discovery, optimize drug delivery systems, and predict drug-nanoparticle interactions with precision. Plenary and invited talks from leading experts will showcase pioneering research, fostering collaboration and innovation in applying AI to solve critical real-world problems.

Topics likely to be discussed during the Workshop:

- ✓ Artificial Intelligence in Healthcare
- ✓ AI-Driven Drug Discovery and Targeted Drug Delivery Systems
- ✓ Glycopolymers-Based Targeted Drug Delivery
- ✓ Synthesis of functional polymers and elastomers

Organizing Committee

Patron:	Prof. Amit Patra, Director, IIT Kharagpur
Chairperson:	Prof. Soumen Das, Head, SMST, IIT Kharagpur
Convener:	Prof. Mahitosh Mandal, SMST, IIT Kharagpur
Joint-Convener:	Prof. Nikhil K. Singha, RTC, IIT Kharagpur Prof. Pralay Mitra, CSE, IIT Kharagpur
Members:	Prof. Sherif El-Khamisy, University of Bradford, UK Prof. Stephen Rimmer, University of Bradford, UK Prof. Muhammad Wahajuddin, University of Bradford, UK, School of Medical Science and Technology, IIT Kharagpur
Student Members	Suvendu Nandi, Ankita Dey, Debraj Das, and Swadhin Chakraborty (IIT Kharagpur)

Registration is compulsory on or before 21st January, 2025

Register through: (CEP online link)

Registration details:

Registration fees: NIL

(Limited capacity, based on first come first serve)

Email: workshopsparc2025@outlook.com

About SMST, IIT Kharagpur

The School of Medical Science & Technology (SMST), IIT Kharagpur started its operation in the year of Golden Jubilee (2001) to train M.B.B.S doctors in the engineering aspects of medicine. Later, it also integrated PhD students who are a part of its diverse research areas which includes, but is not limited to, biomaterials, tissue engineering, reproductive biology, medical biotechnology, medical instrumentation, cancer biology and wound healing, MEMS and biosensors, medical imaging and image analysis and molecular imaging. The School has collaboration with some of the best medical research institutes and medical industries from all over the world.

About RTC, IIT Kharagpur

The Rubber Technology Centre (RTC) at IIT Kharagpur, established in 1955 and independent since 1981, is a leader in rubber and polymer science. It conducts pioneering research on advanced rubbers, polymers, composites, and novel processing technologies. RTC's work spans areas such as self-healing materials, sensors, and biomedical applications. In 2014, it was recognized as the best institute in Asia for rubber science and technology. The Centre collaborates closely with academia and industries globally.

About Dept. of Computer Science & Engineering, IIT Kharagpur

The Department of Computer Science and Engineering at the Indian Institute of Technology, Kharagpur, was formed in 1980. It provides an outstanding research environment complemented by superior teaching for its students to flourish in. Major research areas include Algorithms and Theory, Artificial Intelligence and Machine Learning, Bioinformatics, Language and Speech Processing, Cryptography and Security, Systems and Networking, Visual Information Processing, Cyberphysical and Embedded Systems, and Formal Verification. The department offers a wide variety of courses in these and other areas.

About IIT Kharagpur

IIT Kharagpur is a premier engineering institute in India, known for its academic excellence, research, and innovation. Established in 1951, it offers diverse programs in engineering, technology, and sciences, and is renowned for its contributions to education, industry, and societal development.

About University of Bradford, UK

The University of Bradford is a public research university located in the city of Bradford, West Yorkshire, England. Offering a wide range of programs, it specializes in health, engineering, business, and social sciences, with a commitment to sustainability and community engagement. Bradford has a proud history of cancer research dating back to the 1950s. Research at the Institute of Cancer Therapeutics (ICT) is focused on targeted cancer therapeutics, using their skills and experience in medicinal chemistry, drug discovery, preclinical pharmacology, drug metabolism and pharmacokinetics, and cell and molecular biology to develop new treatments and diagnostics from concept to clinic.