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IIT Guwahati explores use of graphene oxide to bridge biomedical innovation

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Graphene oxide can be engineered to enhance its optical and electrical properties for improved biomedical sensing applications

Researchers at the Indian Institute of Technology Guwahati (IIT-G) led by Dr Rajiv K. Kar, Assistant Professor, Jyoti and Bhupat Mehta School of Health Sciences and Technology, IIT Guwahati, have made important discoveries regarding the use of modified graphene oxide for biomedical applications.

The team has also developed cost effective experiments for modifying graphene oxide that can be used by other academic institutions to train personnel needed for cutting edge projects in semiconductors, nanoelectronics, healthcare, and quantum technologies supported by the Indian Government.

Graphene, a Nobel Prize winning material, is exceptionally strong and possesses outstanding electrical and thermal conductivity. Its oxidised form, called Graphene Oxide (GO), offers a large surface area and low cytotoxicity, making it suitable for medical applications.

The team's extensive knowledge of Graphene-based materials has led to the development of innovative laboratory experiments designed to provide students with hands-on skills and inspire them to explore the possibilities of advanced materials. These experiments are integrated into a Biomedical Science and Engineering (BMSE) course at IIT Guwahati's Jyoti and Bhupat Mehta School of Health Sciences and Technology.

Speaking about the innovative course for biomedical education, Dr Rajiv K Kar said, "These low-cost laboratory experiments are applicable also to chemical, material science, nanotechnology, and interdisciplinary courses. We believe these techniques will help in developing hands-on skills and inspire budding researchers and future scientists to find innovative solutions in the field of Biomedical Science and Engineering,"