Professor Golap Kalita

Professor Golap Kalita did his Masters Degree in Physics (2003) and Energy Technology (2005) from Tezpur University, India. He was CSIR research fellow at IIT Bombay. He is recipient of Monbukagasho Fellowship (Japan) for higher studies and joined Chubu University as a research student under Professor Masayoshi Umeno. He did Ph.D. in the area of organic/inorganic solar cells (2010) and was awarded JSPS postdoctoral fellowship (2010). In 2012, he joined at Nagoya Institute of Technology, Japan as an Innovative Researcher and since July, 2015, he is Professor and Principal Investigator at Department of Physical Science and Engineering. He has authored/co-authored 110 research papers in refereed international journals. His work was also shortlisted by Japan Science and Technology (JST, 2014, 2016, 2017) for Japanese Innovation, Promoting Technology Transfer and Innovation. He is a regular referee of many reputed ACS, RSC, Elsevier, Wiley and Springer Journals and acted as reviewer for 55 Journals. He is an editorial board member of Scientific Report of open access journal of Nature. His interests are nanoelectronics, optoelectronics and energy related devices.

Keynote Speaker

Chemical Vapor Deposition of Two Dimensional Materials for Next-Generation Electronic Devices

Abstract

Synthesis of high quality two dimensional layered materials such as, graphene, hexagonal boron nitride (h-BN), transition metal dichalcogenides (TMDCs) are of significant challenge for practical device applications. We have developed a chemical vapor deposition technique to synthesize predominantly monolayer graphene on resolidified copper foil using various solid carbon sources. The chemical vapor deposition process is further extended for growth of h-BN and TMDCs layered materials. Growth of high quality graphene and h-BN have been mostly achieved on a catalyst substrates, while TMDCs layer are directly grown on insulating substrate. Synthesized graphene has been integrated with silicon and gallium nitride (GaN) semiconductors for fabrication of photodiode and solar cells. Graphene with excellent optical transparency, electrical and thermal conductivity can be excellent conducting electrode material for silicon and GaN based optoelectronic devices. We have also integrated TMDCs layered material with graphene and other semiconductors for fabrication of optoelectronic devices. Details of the growth dynamics of these layered materials and device fabrication process will be discussed.