最先端融合科学イノベーション教育研究コンソーシアム

Evening seminar

Progress in Physical Properties of Fiber Reinforced Nanocomposites and CNT Wires

Prof. Ramazan Asmatulu

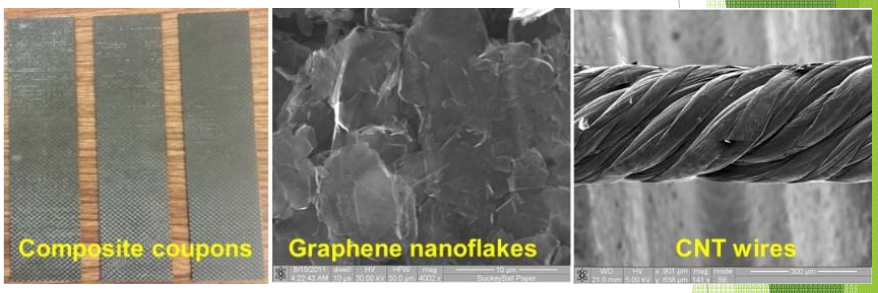
Dept. Mechanical Engineering, Wichita State University, USA

日時：令和元年7月23日（火）　講演＆情報交換会：17:00～

July 23, 2019 Tus.　17:00-

場所：東京工業大学大岡山キャンパス 石川台3号館３０４会議室

Tokyo Institute of Technology, O-okayama, Ishikawadai Bldg.3, room304



【Abstract】

Recent studies on carbon nanotube (CNT) wires and fiber reinforced composite materials have been continuously increasing due to their amazing mechanical, electrical, and thermal properties. These materials are considered to be the next generation of lighter and stronger aircraft and wind turbines, faster cars, more sensitive sensors, more powerful computers and satellites, stronger materials for structural applications, and better micro- and nanochips and batteries for a number of different industrial applications. Lately, many research studies have been focused on the fabrication and characterization of CNT wires and fiber reinforced composites to determine their unique physical properties in the presence of various inclusions, and to take advantage of these properties for the future advancement in the field. In this presentation, we will talk about the mechanical, thermal and electrical properties of various CNT wires and fiber reinforced polymeric composites incorporated with graphene nanoflakes under different environmental conditions. Our test results indicated that many of the physical properties of these strategist materials could be substantially enhanced for many applications. ABAQUS and FEMAP modeling studies greatly support our findings on the CNT wires and fiber reinforced nanocomposites. The composite aircraft and wind energy companies can significantly benefit from the present work to further develop new and exciting products using CNT wires and fiber reinforced nanocomposites.

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