

[Keynote Talk]: Morphological Analysis of Continuous Graphene Oxide Fibers Incorporated with Carbon Nanotube and MnCl₂

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Abstract : Graphene oxide fibers have recently received increasing attention due to their excellent properties such as high specific surface area, high mechanical strength, good thermal properties and high electrical conductivity. They have shown notable potential in various applications including batteries, sensors, filtration and separation and wearable electronics. Carbon nanotubes (CNTs) have unique structural, mechanical, and electrical properties and can be used together with graphene oxide fibers for several application areas such as lithium ion batteries, wearable electronics, etc. Metals salts that can be converted into metal ions and metal oxide can be also used for several application areas such as battery, purification natural gas, filtration, absorption. This study investigates the effects of CNT and metal complex compounds (MnCl₂, metal salts) on the morphological structure of graphene oxide fibers. The graphene oxide dispersion was manufactured by modified Hummers method, and continuous graphene oxide fibers were produced with wet spinning. The CNT and MnCl₂ were incorporated into the coagulation baths during wet spinning process. Produced composite continuous fibers were analyzed with SEM, SEM-EDS and AFM microscopies and as spun fiber counts were measured.

Keywords : continuous graphene oxide fiber, Hummers' method, CNT, MnCl₂

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