JURAINA MD YUSOF
Research Officer, Nanomaterials Processing and Technology Laboratory
Expertise: Carbon Nanomaterials, Carbon Particles, Piezoelectric Materials
Email: juraina@upm.edu.my
Phone: +603.9769.7555

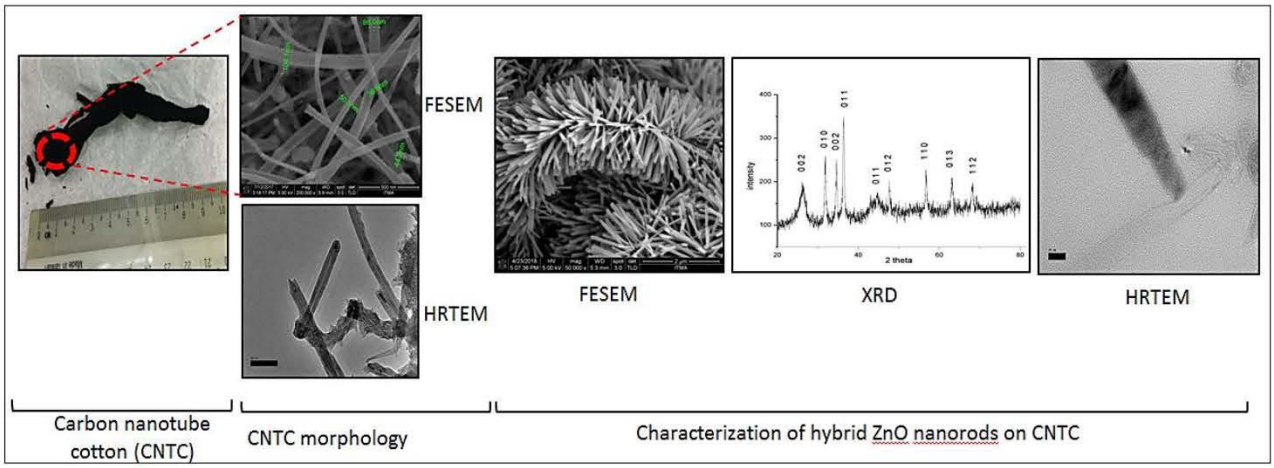
Google Scholar: Link ResearchGate : Link
Scopus Author ID: 35075509100

ORCID

RESEARCH HIGHLIGHTS

ZNO/CNTC Hybrid for Nanoscale Electronic Devices

Preparation and characterization of zinc oxide (ZnO) nanostructures on green carbon nanotubes cotton (CNTC) was investigated. CNTC from waste cooking palm oil (WCPO) was synthesized via floating catalyst chemical vapor deposition (FCCVD). Prior to hybridization, ZnO buffer layer for growth patterning localization was deposited on CNTC using 99.9% ZnO target. ZnO nanostructures were grown on CNTC using chemical bath deposition method. It was observed that the average diameter and length of the nanostructures increased given the highest aspect ratio of 12. The I-V curve of the hybrid showed that conductivity increased with the increased of synthesis temperature. Higher temperature at 120 ℃ gives the best conductivity value as compared to the other heat level. The grown nanostructures on CNTC are comparable to those grown on other substrate such as glass and alumina. In addition, this hybrid offers promising future as CNTC is flexible, readily available and incurs low cost than those substrates. Characterization of the hybrid material showed promising characteristics that can be further explored in the application of small nanoscale electronic devices and others such as electromagnetic absorbing material, piezoelectric nanogenerator and sensors.



Related publications on the synthesis and characterizations of the hybrid materials can be found in the manuscripts below.

1. Yusof, J. M., Ismail, I., Yusop, M. R., Rashid, S. A., Nong, M. A. M. & Ali, M. H. M. 2020. Effect of Zinc Oxide Nucleation on Flexible Bio-based Carbon Nanotube Cotton via Chemical Bath Deposition Method. *Microelectronic Engineering* 234.

2. Ismail, I., Yusof, J. M., Mat Nong, M. A. & Adnan, N. L. 2018. Synthesis of Carbon Nanotube-cotton Superfiber Materials. *Synthesis, Technology and Applications of Carbon Nanomaterials*. 61–76. Elsevier.