

Particle size distribution and copper loading ratio in synthesizing bimetallic Fe/Cu nanoparticles

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Nowadays, many researches are carried out to apply the nanotechnology for various purposes. This research is carried out to explore effect of second metal copper loading on the particle size distribution of bimetallic Fe/Cu nanoparticles. Copper ratio is ranged from 5% to 20% while synthesizing bimetallic nanoparticles of iron with copper. Particle size distribution corresponds to the copper loading ratio according to the results from PSD analyzer HORIBALA-920 with the limit 0.5 nm to 5000 nm. 90% of synthesized bimetallic Fe/Cu nanoparticles is ranged from 2.26 nm to 115 nm and majority were found at 39.05 nm when copper loading ratio is fixed at 5% during synthesis. With 10% copper loading, the highest percentage of bimetallic particles has 44.72 nm. However, at 15% copper loading, more than 14% of bimetallic particles are larger than 340 nm. Similarly, at 20% copper loading, 23% of synthesized bimetallic particles are larger than 392 nm.

Biography

May Thant Zin is a AUN/SEED-net JICA (Japan International Cooperation Agency) scholar pursuing her Ph.D. at De La Salle University, Manila, Philippines and Tokyo Institute of Technology, Tokyo, Japan. She was also granted Thailand International Cooperation Agency (TICA) scholarship for her master's degree in Thailand. She is a Myanmar citizen and also a lecturer from Chemical Engineering Department, Mandalay Technological University, Myanmar. She has published 2 papers in international conference proceedings and submitted to publish 1 paper in a CAS indexed journal.

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Acoustic absorption coefficient of nanoscopic fibres

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Advances in nanotechnology have provided acoustic researchers with a number of new materials with nano-fibres and nano-pores that can potentially be implemented as an acoustic porous absorber. This paper investigates the acoustic absorption behaviour of nanoscopic fibres by utilising a test sample of carbon nanotube (CNT), in order to quantify the acoustic characteristics and absorption performance of nanomaterials in comparison with conventional porous materials. Tests were conducted using an impedance tube to measure the normal incidence acoustic absorption coefficient of a vertically aligned carbon nanotube (CNT) forest. It was found that CNT forest can provide better acoustic absorption than conventional porous materials of equivalent thickness and mass. The outcomes of this investigation highlight the potential of nanoscopic fibres for use as light-weight acoustic absorbers.

Biography

Md Ayub is a Ph.D. student in the School of Mechanical Engineering at the University of Adelaide. Prior to joining the Ph.D. program, he worked as a graduate research assistant (GRA) at the National University of Malaysia (UKM), from where he attained his M.Sc. in 2011. He has completed his B.Sc. in 2008 from Bangladesh University of Engineering and Technology (BUET). He has been working in the field of acoustics since 2008, as both a researcher and occasional consultant.

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