

Abstract:- Preparation of shape controlled nano and/or micro-sized materials through self-assembly of functional units are a key issue in bottom-up nanotechnology. It is also fundamentally interesting to develop specific structural architectures using material with unique structure and properties that are structurally different from previously reported ones. Especially, highly functional molecules such as fullerenes are desired to be assembled into defined nano/micro-shapes in order to construct advanced electronic, photonic devices. Although various efforts have been done in shape-setting of fullerenes, highly selective preparation route for desired morphologies like whiskers, tubes, sheets and three-dimensional cube is still everlasting challenge. Here we show a liquid-liquid interfacial precipitation method for highly selective precipitation of fullerene nano/micro structures under selected experimental conditions. Though, the potential exploitation of these fullerene nano/micro structures has not been explored completely, preliminary results obtained for energy and environmental related issues will be discussed in detail. In addition, graphene and metal oxide decorated graphene synthesis, characterization and its application for supercapacitor will be discussed.

BIO:

Dr. Marappan Sathish completed his Ph.D. degree in chemistry at the Indian Institute of Technology, Madras in 2006. He was then postdoctoral research fellow at National Institute for Material Science (NIMS), Tsukuba, Japan. At 2010, Dr. Marappan Sathish, joined as JSPS postdoctoral researcher at Tohoku University, Sendai, Japan.