S2.3

Nanocomposites for Engineering and Biomedical Applications

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Abstract

In this presentation two very diverse applications of nanocomposites will be discussed. In the first part we will present engineering applications of cellulose nanocomposites as electrically conducting smart textiles and use of glass fibres/nanotube and epoxy multi-scale composites for improved fracture toughness.

In the second part we will present manufacturing of cellulose and chitin nanocomposites for biomedical applications. The cellulose and chitin nanotube composites were manufactured using ionic liquids as benign solvents. The neat chitin and electrically conducting chitin nanotube composite scaffolds show good bio-compatibility with mesenchymal stem cells. The electrically conducting chitin scaffolds can be good candidates for electrical stimulation of range of biological tissues.

Short Biography

Dr Sameer S Rahatekar is a lecturer in Advanced Composites Centre for Innovation and Science, Aerospace Engineering, University of Bristol from 2009. He is a member of the EPSRC sponsored Doctoral Training Centre in Composite Materials and Program Director for MSc program in Advanced Composites at Bristol. Dr Rahatekar earned his PhD from University of Cambridge and was a postdoctoral fellow at National Institute of Standards and Technology (NIST), Gaithersburg, USA. His research is focused on polymer composites and nano-composites manufacturing, manufacturing of regenerated natural polymer nanocomposites fibres using ionic liquids and natural polymers based nanocomposites for tissue engineering.