

One Page Write Up Proposal for Ph.D in Polymer Composites

Candidates' Name: Mr. R. G. Padmanabhan., M.Tech., (Manufacturing Technology)

Development and analysis of bio-fiber metal laminates (BFML) for structural applications in Micromobility

Nowadays mainly in automotive applications the structural materials are made by fiber reinforced composite materials in order to get the advantages of the fibers such as light weight, high strength to weight ratio, low density, and comparable mechanical properties. However, these materials cannot be used in structural applications where high loading is applied. In this case, the main objective of this work is to explore the possibilities of finding an innovative natural fibre metal laminate for the structural frame. We propose to use epoxy based fiber metal laminates with plant woven fabric and aluminum mesh to form structural rods through filament winding method. The fabricated bio-fiber metal laminates will be subjected to various testing to ensure the required properties such as mechanical, dynamic mechanical, static and dynamic buckling, corrosion resistance, thermal stability etc. By this research, a unique platform for the structural frame will be designed and analyzed with the various properties to obtain a gainful result and use for various structural applications in industrial/automobile sectors.