

# JUTE POLYMER COMPOSITES IN ADVANCED CERAMIC MATRIX

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BY

REENU JACOB[PRINCIPAL INVESTIGATOR]

DEPT OF PHYSICS

CMS COLLEGE

KOTTAYAM.

[Affiliated to Mahatma University Kottayam]

## **Brief Report of the Study**

For the proposed work new nano crystalline ceramics PSCCO was prepared and analyzed. The perovskite phase structured ceramic materials were prepared by the conventional solid state reaction technique using a high-energy ball milling process through mechanically assisted synthesis. The prepared samples were then subjected to calcinations at different treating temperatures to acquire the desired homogeneity and phase formation. In order to show the viability of the proposed method, these powder were prepared in a special furnace. The samples were analyzed by X-ray Diffraction (XRD), Particle size determination,

SEM, TGA, DSC and EDX. The comparison of XRD results with JCPDS files and analysis with XPERT PRO software confirmed the *orthorhombic* structure of the *samples* with  $a \neq b \neq c$  and  $\alpha = \beta = \gamma = 90$ . Scanning electron microscopy (SEM) studies revealed that the particle sizes are in the nano meter range. It also confirmed the calculated value of particle size using the Debye Scherrer's formula. EDX spectrum showed the confirmation of the elements of the sample.

Dielectric analysis of the samples were carried out to study the electrical behavior. This analysis part will be followed by Bio fibre mixing with the ceramics with plasticoder, compression mould to sheets and their characterization studies. Tensile and flexural strength of the composite was done in detail.