XXI B-MRS Meeting

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October 1st to 5th

SBPMat B-MRS BRAZILIAN MATERIA RESEARCH SOCIET

Maceió-AL, Braz

October 1st to 5th, 2023

Booklet | Presentation Schedule | Mobile App

until ~~April 17th~~ May 1st	~~June 00th~~ June 25th	until ~~June 19th~~ June 29nd	~~June 26th~~ July 07th	until July 26th
Submission of Abstracts	Abstract status notification	Submission of Revised Abstract	Final Abstract Notification	Submission for Student Awards

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Welcome

The **Brazilian Materials Research Society (B-MRS)** and the
Committee of the XXI B-MRS Meeting invite the worldwide
community of materials research to attend the 2023 Meetir
be held at the Ruth Cardoso Cultural and Exhibition Center
Maceió-Alagoas, Brazil, October 1st to 5th, 2023.

This traditional forum is dedicated to recent advances and
perspectives in materials science and related technologies.
be an excellent opportunity to bring together scientists, eng
and students from academy and industry to discuss the sta
art of Materials Science discoveries and perspectives.

Maceió is one of the main Brazilian capitals that has receiv
tourists mainly due to the receptivity of its inhabitants, the
beaches with warm waters and extraordinary gastronomy. Y
very well welcome to Maceió. Do not miss this opportunity.

Organizing Committe

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POLYURETHANE-TYPE MATRICES SYNTHESIZED FROM MICROCRYSTALLINE CELLULOSE AS POLYOL

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The present study investigated the formation of hybridly reinforced composites simultaneously with the synthesis of biomass-based polyurethane (PU) matrices. Microcrystalline cellulose (MCC) was used as polyol and reinforcement. Castor oil (CO) was used as an additional polyol and also to help disperse the solids reagents. The reactions were carried out with no solvent or catalyst. The isocyanate used was diphenylmethane diisocyanate. The reinforcements were sisal mats and/or short curauá fibers (3 cm long, randomly distributed), with the presence or not of MCC as an additional reinforcement. The materials were characterized by thermogravimetric (TGA) and dynamic mechanical (DMA) analyses, flexural tests, and scanning electron microscopy (SEM). The TGA analysis indicated thermal stability of all materials up to 250°C. The DMA tan delta curves showed glass transition (Tg) below room temperature, approximately 20°C and 2°C for the - unreinforced PU and composites, respectively. The flexural tests carried out at room temperature (about 25 °C) proved elastomeric characteristics for the unreinforced polyurethane and composites without curauá fibers as reinforcement. The SEM images showed good interaction at the interface matrix-fibers and homogeneous dispersity of the MCC used as reinforcement. The materials were prepared from a highly renewable content, inside the circular bioeconomy context, with potential application in various sectors, such as automotive, aeronautical, and nautical industries.