



Dielectric performances of biobased materials

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Abstract

The exponential increasing need of materials with good dielectric performance, the growth of biopolymer based composites and the limitation of fossil resources creates the basis for developing new biobased and or biodegradable structures adapted for a large panel of dielectric application. Although work has already been carried out in this field of materials science, many limitations of the polymer matrix still exist to fully benefit from the dielectric performance of these promising new materials. To study more closely the dielectric performance of bio-nanocomposites materials, many researchers focus on developing this kind of materials and work intensively to. In this context, our research project aims to

- evaluate the dielectric potential of bio-sourced and/or biodegradable polymers for the preparation of bionanocomposite polymer-particle blends,
- Study and improve the multiphysical (mechanical, microstructural) and dielectric properties of biodegradable polymer blends by incorporating different particle rates. Different polymers blends (PLA-PHBV, PLA-Cellulose Acetate, and PHBV- Cellulose Acetate) were prepared by different technology (extrusion and 3d printing) and their physical, rheological and dielectric behavior were studied.

The presentation will focus on methods for optimizing the matrix, biobased fillers and nanocomposites to facilitate the integration of these new materials into electronic applications.

Biography

Mohamed Ragoubi is a physicist with profound expertise in polymers and biobased materials for several sectors. He received his master's degree in Mechanics and Materials Science from ENSISA in France in 2007 and his Ph. D. in Polymers and Composite Materials from the Lorraine University in France in 2010. He evolved several academic and industrial positions in France and Canada. His activities include the development of composites, nanocomposites, and multilayer materials. His expertise includes also smart textile and recycled materials. Since 2015, he joined the Polytechnic Institute Unilasalle, France, to work as an Assistant Professor in Physics and Materials Science. He manages several industrial projects regarding the use of plant fibers as reinforcements in polymers materials. Now, he is the head of research valorization and the head of Agrortech, a technological platform for plant and biobased materials.

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