

Editorial

Sustainable Composites

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In the current era, the world is suffering from several environmental issues which have been raised by different academic, industrial, and environmental sectors. One of the main concerns is the large amount of nonsustainable productions and the way of their disposal. Due to this, the combination of the environmental regulation and industrial demands urges the researchers to develop alternative and sustainable materials. In the recent years, there have been new research areas that are being developed covering different types of sustainable materials for different mechanical, civil, electrical and even medical applications.

In this special issue, a number of articles related to the sustainable composite materials and their applications have been discussed. In particular, sustainable use of tepetate composite in earthen structure has been presented in an article. This article also includes the characterization of the mechanical and physicochemical properties of the sustainable tepetate composites. A detailed review on tribological behaviour of polymeric composites and their future reinforcements has been conducted in a separate article. The article reviews several factors which control the wear and frictional characteristics of such materials, that is, additives, fibres, interfacial adhesion, tribology environment, operating parameters, and composite geometry. Manufacturing of a green type of composite sandwich structures with basalt fiber and bioepoxy resin has also been articulated here, which includes some useful finite element analyses. In another article, materials selection process, synthesis, and dielectric properties of PVC nanocomposites have been discussed for electrical insulation application. The impact of localization of a passive smart composite plate fabricated using piezoelectric materials has been investigated experimentally and theoretically in a separate article. The development of a lightweight

composite based on Portland cement concrete with waste lightweight aggregate additive has also been carried out and discussed to improve the sustainability and environmental impact and to offer potential cost savings without sacrificing strength. In another paper, an attempt has been made to enhance the mechanical properties of recycled high-density polyethylene (HDPE) with chopped strand mat glass fibres as a synthetic reinforcement and with short oil palm fibres as a biodegradable reinforcement. A paper has presented the reinforcing effects of the inclusion of short polypropylene fibers on recycled foamed asphalt mixture. Effects of fiber orientation and material isotropy on the analytical elastic solution of a stiffened orthotropic panel subjected to a combined loading have been discussed in a separate article. Finally, an investigation on the behavior of concrete columns repaired with polymer mortar and epoxy fiber panel considering underground and underwater conditions has been presented in this special issue.

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