

عنوان مقاله:

Characterization of biodegradable PLA and carbon fiber reinforced PLA produced by 3D printers

محل انتشار:

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خلاصه مقاله:

In the present research, a long carbon fiber reinforced poly lactic acid (PLA) composite is manufactured by an additive manufacturing technology using a fused deposition modeling (FDM) 3D printing. In this regard, different conceptual designs are first compared and an innovative extruder is finally designed, manufactured and installed on a FDM printer. The main advantage of this design is that it can be installed on any available FDM 3D printer and consequently there is no need to design a new chassis and controller. It is also an effective step towards the rapid prototyping of biodegradable composites. Finally, tensile specimens made of pure PLA and carbon fiber reinforced PLA are printed by the new designed extruder and tested under quasi-static loading. Experimental results show significant improvements of mechanical properties.

کلمات کلیدی:

3D printer, Fused decomposition modeling (FDM), Biodegradable Composite, PLA

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