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CHEMISTRY

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SEMINAR SERIES



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3D Printing of Continuous Fiber-reinforced Thermoset Composites

In our recent work, we developed a versatile 3D printing method for continuous-fiber thermoset composites based on direct ink writing. It leverages the shear stress imposed on the fiber to enable the ready extrusion of composite filaments and can be applied to print most thermally curable and photo-curable resins and commercially available fibers. The fiber content of composites and the printing speed can be precisely controlled with excellent reliability and repeatability. The printed thermally curable composites show excellent mechanical strength due to the covalent bonding among filaments. Overall, the developed printing method allows the composite parts to be designed quickly to meet unique specifications, as well as providing new functions in 4D printing, biomedical printing, and the printing of functional devices.