

Bioinspired Materials from Extrinsically-Controlled Fabrication Techniques

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Bioinspired fabrication techniques that are able to mimic the structure and properties of biological materials are of interest to a wide range of scientific and engineering fields. We propose that these bioinspired techniques can be controlled through either intrinsic (those that modify from within by altering the constituents) or extrinsic (those that apply external forces or templates) means. Through these classifications, examples of extrinsic (through energized magnetic and ultrasound external fields) freeze cast, aerogel, and FDM printed structures will be discussed with a focus on providing advanced control of the final material structure and properties. Applications in biomedical and filtration technologies will be discussed.