



3D and 4D Printing of (Bio)Materials

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Message from the Guest Editor

3D printing has emerged as one of the most versatile fabrication technologies, referred to as the additive manufacturing technique, which involves additives such as polymers and metals deposited in sequential layers to produce a 3D object (i.e., pills or medical devices).

Being based on the traditional 3D printing, 4D printing can encompass a wide range of disciplines, such as materials science, bioengineering, and chemistry/chemical engineering, and has the true potential to emerge as the next-generation additive manufacturing technique. Using stimuli-responsive (also known as shape memory) materials, 4D printing creates structures that are capable of transforming from one shape to another, right off the print bed under various stimuli, such as heat, pH, water, etc.

The 3D printing process optimization, engineering, formulation compositions, advanced drug delivery, materials properties, and characterizations, and the state of the art and limitations that exist in the current printing modalities will be explored in this proposed Special Issue of Polymers.

Keywords:

- 3D and 4D printing
- biomaterials
- implants
- smart implants
- drug delivery
- additive manufacturing





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