

3D Inkjet Printing for Rapid Prototyping: Development of a Physical Model

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ABSTRACT

Ink-jet printing is an ever-evolving technology with expanding applications. It is one of the established techniques employed in the field of rapid prototyping, especially in droplet-based manufacturing technique. However, such digital fabrication that involves small diameter high-speed droplet requires precise control of the droplet volume and momentum. Some issue regarding the accuracy of the printed part is discussed. This paper presents an analysis to model the inkjet printing process, specifically to MMIITM 3D inkjet printer, so as to provide physical insight on the process. The analysis is useful in the prediction of printing performance and to investigate the effect of specific variables. The machine's performance is important in order to achieve the predetermined morphology and resolution. Application of the parts printed is demonstrated.

Keywords: Rapid Prototyping, ink-jet printing and droplet