

HIGH-SPEED 3D PRINTING OF DIGITAL COMPONENTS WITH THE DIRECT ADDITIVE MATERIAL DEPOSITION CONTROLLED IN ELECTROMAGNETIC FIELD

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Abstract. A new method of granule control in the electromagnetic field was proposed, in order to create a more rapid and precise process of material direct deposition with the minimum material loss. Use of several sources of material feed into the molten pool allows creating composite components with combined feeding of various materials. The new method as compared to the analogues allows very high speed additive component manufacture. Component fabrication speed may be constrained only by the pool melting speed of the beam.

Keywords: additive manufacture, electromagnetic field, selective sintering, substance direct deposition, 3D-printer, temperature gradient.