

# 3D Printer with Improved Selective Laser Sintering (SLS)

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## BRIEF DESCRIPTION

Three dimensional (3D) printer and rapid prototyping (RP) systems are currently used to quickly produce objects and to prototype parts using CAD tools. Most RP systems use an additive, layer-by-layer approach to building parts by joining liquid, powder, or sheet materials to form physical objects. Some of these RP systems through selective laser sintering amalgamate materials by heating them with lasers to generate 3D printed objects.

Researchers at the University of California, Irvine have created a new 3D printer with improved selective laser sintering. The new 3D printer and process varies the composition of the materials in a 3D printed object thus creating an object with enhanced strength, conductivity, heat resistance and other enhancing properties.

## FULL DESCRIPTION

This invention presents a straightforward way of incorporating fibers and micro-and-nano-particles in the matrix material of the part built with powder bed fusion technologies such as Selective Laser Sintering. The invention allows for production of functionally graded parts where material within the part is not homogeneous but contains layers of various types of inclusions as is required to enhance the performance of the part. Additionally, the invention outlines the way the use aligned carbon fibers as integral part of SLS based production.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,799,952	10/13/2020	2015-517
United States Of America	Published Application	20210060649	03/04/2021	2015-517

## STATE OF DEVELOPMENT

A prototype of this technology has been made and tested for heat and mass transfer.

## CONTACT

Ben Chu  
ben.chu@uci.edu  
tel: .



## OTHER INFORMATION

### KEYWORDS

3D Printing, CAD, Rapid Prototyping

### CATEGORIZED AS

- » Engineering
  - » Engineering
- » Materials & Chemicals
  - » Composites

### RELATED CASES

2015-517-0

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5270 California Avenue / Irvine, CA  
92697-7700 / Tel: 949.824.2683



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