

## Additive manufacturing: the next industrial revolution

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### Abstract

Additive manufacturing which is based on printing processes, is considered as the next industrial revolution. Functional printing brings additional performance of printed patterns, beyond the conventional graphic output, and the main bottleneck in this field is the lack of suitable materials. The synthesis and formulations of novel nanomaterials and inks will be presented, with their utilization in printed devices, responsive and 3D objects. New approaches for achieving conductive inks for printed plastic electronics will be presented, as well as new materials and processes for 3D and 4D printing. Utilization of 3D and 4D printing technologies for fabrication of objects composed of ceramics, shape memory polymers, elastomers and hydrogels will be demonstrated, for applications such as soft robotics, drug delivery systems, responsive connectors and Internet of Things (IoT), dynamic jewelry and medical devices..

### Biography:

Shlomo Magdassi is a professor at the Institute of Chemistry of The Hebrew University of Jerusalem. He is the Director of the Center for Functional and 3D Printing, and holds the Enrique Berman Chair in solar energy. His research focuses on micro and nanomaterials and their applications in functional inks such as printed electronics, 2D, 3D and 4D printing. He is the author over 300 publications and the editor of 4 books. He also has more than 80 inventions (38 US granted patents, ~300 PCT applications), which are related to applications of dispersed systems in various industries. Based on his inventions, many commercial activities evolved, which led to licensing, worldwide sales and establishing new start-up companies.

### References

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**Citation:** Additive manufacturing: the next industrial revolution; Materials – Chemistry 2021; May24, 2021.