

Nanocomposites reinforced with carbon nanofibres for 3D printing

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Abstract

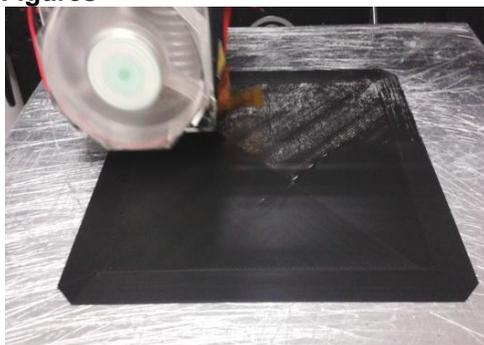
Additive manufacturing is a group of emerging technologies that create objects from the bottom-up by adding material one cross-sectional layer a time. In 3D printing in particular, the additive process of the successive layers of material is laid down under computer control and these objects can be of almost any shape or geometry, and are produced from a 3D model or other electronic data source. The majority of materials used presently by modern 3D printing techniques are proprietary polymers and therefore big efforts are being done in order to find new materials with interesting functionalities such as thermal conductivity, electrical conductivity, mechanical resistance, etc....

As material science advances, one of the more exciting developments over the last several years has been the utilization of carbon nanofibres, a material which is extremely lightweight, strong, and electrically conductive. In the present poster, new polymeric films and tensile test samples reinforced with these graphenic nanofibres and manufactured by 3D printing are shown. The development of these materials suitable for 3D printing is only the beginning of a new era within the material science is applied to this kind of bottom-up manufacturing.

References

- [1] Olga Ivanova, Christopher Williams, Thomas Campbell, Rapid Prototyping Journal, **19/5** (2013) 353.
- [2] Ignacio Martin-Gullon, José Vera, Juan A. Conesa, José L. González, César Merino, Carbon **44** (2006) 1572.

Figures



Figures a) 3D printing of a nanocomposite film b) Tensile test samples manufactured by 3D printing