

Development and applications of printable polymer based smart and multifunctional materials

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Abstract

Close related to the strong evolution of the Internet of Things (IoT) and Industry 4.0 concepts [1], enabling new services and production paradigms, smart and multifunctional materials are a key driving force for the development of wireless, sustainable and interconnected systems [2]. Thus, printed smart materials is an area of increasing interest due to low-cost fabrication, simple integration into devices and possibility of obtaining multifunctional materials over large and flexible areas¹. The impact of printable smart and multifunctional materials span from the areas of sensors and actuators [2], to energy generation [3] and storage [4] and tissue engineering applications [5], among others. The present talk will summarize the main features, achievements and the challenges associated with various printing technologies. Further, the most relevant smart materials that are already being printed, mainly piezoelectric, piezoresistive and magnetostrictive will be discussed together with some representative applications. Finally, critical challenges and future research directions will be indicated.

References

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