

An additive manufacturing and e-printing based approach for flexible scalable manufacturing of Microsystems

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Abstract

Additive manufacturing technologies are gaining more and more of importance as key enabling technologies for future manufacturing, especially when a flexible scalable manufacturing of small medium series of customized parts is required.

The presentation provides an insight into a new approach for design and manufacturing of three dimensional mechatronic components. The SMARTLAM idea builds on a combination of generative technologies such as laminated objects manufacturing as well as e-printing technologies and use of substrate materials with advanced properties, where the 3D micro component is made up of stacks of functionalized layers of structured or printed polymer films.

The concept as well as an equipment demonstrator is currently developed further in the project SMARTLAM, funded by the European Commission. Besides some technological highlights a first assessment of the new technology regarding cost effectiveness will be given.

Keywords: flexible scalable manufacturing of small medium series of (micro) components, smart manufacturing, additive manufacturing, printing technologies, Laser, chip positioning