

PRESS RELEASE

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New paths in regenerative medicine using physical plasma

3D-printed biocompatible support structures known as scaffolds play an important role in the field of regenerative medicine. They serve as the basis, for example, for producing biological tissue intended to support wound healing or minimize the risk of postoperative infection. Together with seven project partners, the Fraunhofer IST is currently working on an advance in 3D printing that will allow for greater time and cost efficiency in producing the scaffolds while at the same time functionalizing them through atmospheric pressure plasma processes.

Atmospheric pressure plasma processes are a promising way to modify the surface of even three-dimensional structures in order to do things such as promoting or deliberately inhibiting cell growth on the surface or providing functional groups for chemical docking of biomolecules. Use of microplasmas also makes it possible to functionalize the surface area-selectively or equip it with a patterned coating. In addition, atmospheric pressure plasma processes have a number of advantages over other surface treatment technologies. Alongside short treatment times, the plasma processes are highly scalable and can readily be integrated into existing process chains.

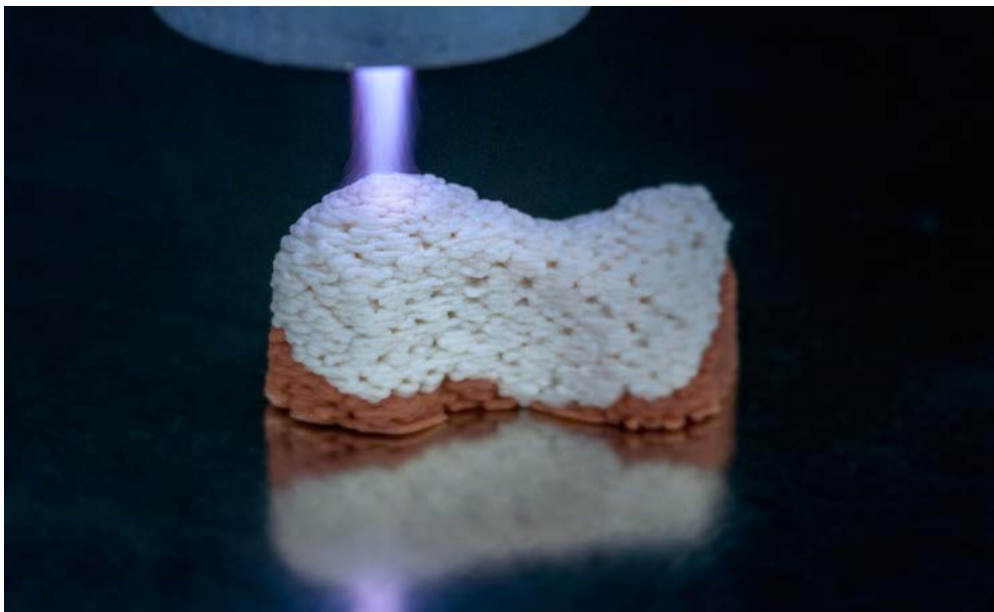
This simple integration is exactly what the current project aims to harness: As early as during the printing process, it is the goal to functionalize or coat the scaffolds using an integrated plasma jet, thereby adapting them individually to the specific patient's requirements.

FRAUNHOFER INSTITUTE FOR SURFACE ENGINEERING AND THIN FILMS IST

The Fraunhofer IST and project partner GeSIM Gesellschaft für Silizium-Mikrosysteme mbH will be presenting the current status of developments in 3D printing and plasma treatment at the joint Fraunhofer booth at Biotechnica 2017 (hall 19/20, booth B02).

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Plasma treatment of 3D printed scaffolds at the Fraunhofer IST.
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