

High resolution 3D printing at high speed

Reference No: B75227

CHALLENGE

Additive manufacturing offers a wide range of fabrication methods. Stereolithography is a photopolymerization process to fabricate macroscopic objects (up to 1000 cm³) with a resolution of 10 to 100 μm in a few hours. In contrast, two-photon absorption gives access to resolution in the range of 100 nm but demands production times of up to several days for millimeter size component.

INNOVATION

We present a solution combining best of both worlds: In an innovative setup, the voluminous parts of an object are produced using stereolithography while fine structured parts are added using two-photon-absorption. In this way, macroscopic objects with nanoscale features are made accessible in reasonable production time.

COMMERCIAL OPPORTUNITIES

- High accuracy at short cycle times
- Efficient production with high cost-effectiveness

DEVELOPMENT STATUS

Basic experiments successful.

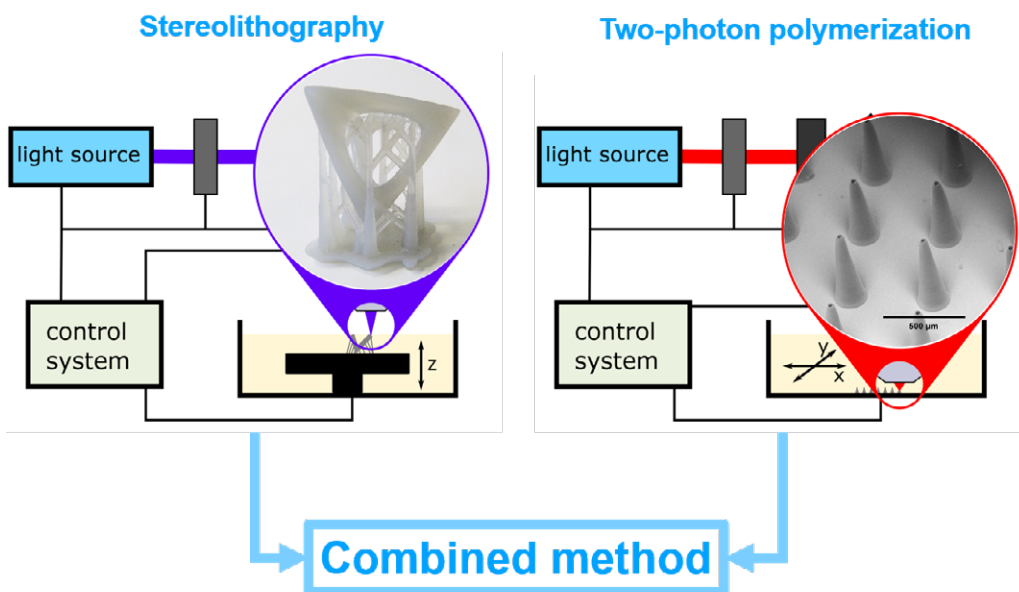
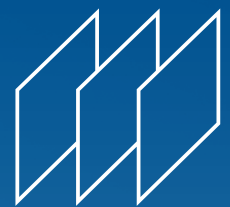


Figure: Macroscopic parts with nanoscale features are made available by combining stereolithography (**left**) and two-photon-absorption (**right**).

REFERENCE:

1 WO 2017/140546



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