TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

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IAP-SEMINAR

EINLADUNG

Termin: **Dienstag, 8.1.2013 um 16:00 Uhr**
Ort: **Technische Universität Wien,**
Institut für Angewandte Physik,
Seminarraum 134A, Turm B (gelbe Leitfarbe), 5. OG
1040 Wien, Wiedner Hauptstraße 8-10

Vortragende: **Dipl.-Ing. Jan Torgersen**
Dipl.-Ing. Simon Gruber
Markus Hatzenbichler, MSc.
TU Wien, Institut für Werkstoffwissenschaft und Werkstofftechnologie

Thema: **Additive Manufacturing Technologies (Two-Photon Polymerization, DLP-based Stereolithography, Selective Laser Melting)**

Kurzfassung

Conventional subtractive manufacturing methods are limited by means of undercuts, thin walls and specific tools are needed to create the structures. In the case of additive manufacturing (AM), the same structures are built layer-by-layer out of solid or liquid feedstock overcoming these limitations. Three different AM methods are investigated at the Institute for Material Science and Technology (TU Vienna), workgroup of Prof. Dr. Jürgen Stampfl; two-photon photopolymerisation (2PP), digital light processing (DLP) based stereolithography and selective laser melting (SLM). In case of SLM, we process monitoring methods using image data processing to assess powder bed failures. We further characterise the mechanics of medical titanium and investigate the usability of high performance ceramic powders. With DLP based AM, 3D parts are made from a photosensitive slurry containing ceramic particles. After the fabrication, the organic content is removed during debinding and sintering to obtain a fully dense ceramic part with arbitrary geometry. With 2PP, our focus is on photopolymerisable hydrogels, polymers swollen by water. In cooperation with the Institute of Applied Synthetic Chemistry, we develop new formulations which can be processed in the presence of living cells and organisms. Mimicking key elements of natural extracellular matrix, we provide a synthetic but biocompatible dynamic environment for cells and tissue.

Alle interessierten Kolleginnen und Kollegen sind zu diesem Seminar
(45 min mit anschließender gemeinsamer Diskussion) herzlich eingeladen.

H. Störi e.h.
(LVA-Leiter)