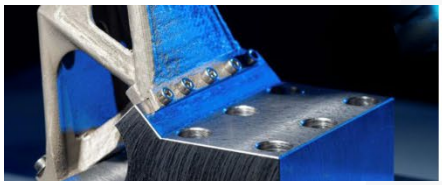

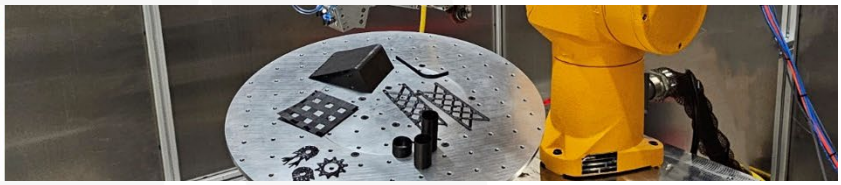

Einladung zur Herbstveranstaltung 2024 der Fachgruppe Additive Manufacturing (FGAM)

Datum: 10. Oktober 2024
Ort: Institut COMATEC, HEIG-VD, Yverdon

Liebe Mitglieder von Swiss Engineering, liebe Interessierte,

die Fachgruppe Additive Manufacturing (FGAM) lädt Sie herzlich zur Herbstveranstaltung am 10. Oktober 2024 ein. Freuen Sie sich auf spannende Präsentationen (auf Englisch), innovative Technologien und eine Besichtigung des Instituts COMATEC sowie des Labors für fortschrittliche Strukturen. Nutzen Sie die Gelegenheit, sich mit Fachkollegen auszutauschen und neue Kontakte zu knüpfen!

Programm:

14:00 Empfang der Teilnehmenden

14:20 **Vorstellung des Instituts COMATEC (F/D/E)**
Jean-Pascal Reymondin (COMATEC / HEIG-VD), Randoald Müller (COMATEC / HEIG-VD)

14:40 **A hybrid Selective Laser Sintering based process for the additive manufacturing of architected composites (E)**
E. Guenier (COMATEC / HEIG-VD), A. Schorderet (COMATEC / HEIG-VD), R.E. Logé (LMTM / EPFL)

15:00 **Robotic additive manufacturing for high performance fibre composite parts (E)**
Joël Cugnoni (COMATEC / HEIG-VD)

15:20 **Besichtigung des Instituts COMATEC** und des Labors für fortschrittliche Strukturen in der Verbundstofffertigung

16:40 **Vorstellung von Synergien: ADDIPOLE, der Technopôle von Ste-Croix und die Fachgruppe FGAM von Swiss Engineering (F/D/E)**
Sylvain Hugon (COMATEC-ADDIPOLE / HEIG-VD)

17:00 **Print patterning using nanoparticle inks - exemples d'activités du Laboratoire Applications des NanoSciences (E)**
Silvia Schintke (Laboratory of Applied NanoSciences, COMATEC-LANS / HEIG-VD)

17:20 **Apéro und Networking (F/D/E)**

Wir freuen uns auf Ihre Teilnahme an diesem informativen und interaktiven Nachmittag!

Fachgruppe Additive Manufacturing (FGAM)
Swiss Engineering STV

Anmeldung Anmeldung bitte bis am 01. Oktober.2024 über www.swissengineering.ch oder am@myswissengineering.ch.

Kosten **Swiss Engineering Mitglieder kostenlos**, CHF 50 für alle anderen.

Kontakt am@myswissengineering.ch

Kontakt am@myswissengineering.ch
Christian Vils +41 79 401 37 93

Institut de Conception mécanique et Technologies des matériaux
Institut COMATEC
Route de Cheseaux 1, 1400 Yverdon-les-Bains
comatec@heig-vd.ch
+41 (0)24 557 63 36

Zusammenfassung der Präsentationen

A hybrid Selective Laser Sintering based process for the additive manufacturing of architected composites

E. Guenier (COMATEC / HEIG-VD), A. Schorderet (COMATEC / HEIG-VD),
R.E. Logé (LMTM / EPFL)

The PhD thesis aimed at proving the feasibility of a new hybrid 3D printing method, combining two existing technologies, Selective Laser Melting (SLM) and Laminated Object Manufacturing (LOM), in order to print architected composites made of a metal and a polymer. The motivation for using a hybrid process lies in the challenges inherent to SLM : high thermal stresses, and recycling issues.
A custom made hybrid printing prototype has been developed at HEIG-VD. A Printed Circuit Board (PCB) was chosen as a case study, combining a conducting copper foil and a Polyamide 12 (PA12) dielectric. As copper is known to have low adhesion properties with polymers, an in-situ laser texturing method was investigated to improve adhesion strength. The proposed solution is two orders of magnitude faster compared to literature, while adhesion strength is improved by a factor 4.

Robotic additive manufacturing for high performance fibre composite parts

Joël Cugnoni, COMATEC / HEIG-VD

Due to their intrinsic high performance per weight, composite materials are ideally suited for high performance lightweight parts but manufacturing of continuous fiber composite part is complex, time consuming and limited by strong constraints. Greene Tweed and COMATEC/HEIG-VD have developed recently a custom 7-DOF robotic manufacturing process based on laser assisted continuous fiber narrow tape deposition to produce hybrid continuous – discontinuous carbon fiber- PEEK parts that combine both complex geometry and high structural performance. In this talk we will present these developments as well as other on-going research activities towards additive manufacturing of continuous fiber composite parts and recyclable composite tooling.

Print patterning using nanoparticle inks

S. Schintke, Laboratory of Applied NanoSciences (COMATEC-LANS) / HEIG-VD

Print patterning finds interest for decorative printing and printed electronics applications, printable magnetic or electromagnetic encoding systems, or for the development of advanced printable authentication methods. Using nanoparticle inks, complex print patterns and structures can be obtained.
In this talk we present examples of 2D and 3D print structuring processes. We have built a versatile platform for the development, investigation and adjustment of tailored print patterning processes using local magnetic fields. The obtained structured patterns are compared with finite element modelling of the magnetic fields.