Fertigungstechnisches Kolloquium

ETH Zurich inspire

Programm für Donnerstag, 13. November: „ Additive Manufacturing & AI: Gearing towards digital warehousing and series production “

14:15 – 14:20 Begrüssung durch Dr. Daniel Werner

14:20 – 14:30 New insights into AM and the need for AI
Dr. Daniel Werner, inspire AG
Additive Manufacturing (AM) and Artificial Intelligence (AI) are increasingly converging to drive innovation and competitiveness in European manufacturing. This talk will provide a brief introduction to the intersection of AM and AI, highlighting how these technologies complement each other. I will also present selected projects currently underway at Inspire, showcasing our approach to integrating AI into AM processes and applications.

14:30 – 15:10 Heritage Meets Innovation: Introducing Additive Manufacturing into a Century-Old Turbomachinery Global Leader
Christian Bay, Accelleron
Embedding emerging technologies like Additive Manufacturing (AM) and Artificial Intelligence (AI) into a global corporation with over 100 years of legacy demands more than innovation—it requires navigating complex qualification processes, legacy system integration, expectation and risk management as well as cultural transformation. This talk dives into strategies for overcoming technical and organizational hurdles, showcasing how engineers can lead the adoption of disruptive technologies while maintaining reliability, compliance, and performance in a global turbomachinery environment.

15:10 – 15:50 Neue Technologien als Treiber der additiven Serienfertigung
Martin Folie, Alphacam
Alphacam hat die Bedeutung der Additiven Fertigung für den Einstieg in die On-Demand-Serienproduktion erkannt. Als Unternehmen ist es ein strategisches Ziel, an der Spitze neu entstehender Technologien zu stehen, um die Fertigungskompetenz in der Schweiz zu stärken und weiterzuentwickeln. Dieser Vortrag stellt einige aufkommende Technologien vor, die hochinteressant und motivierend sein können, um die Serienproduktion in der AM voranzubringen.

15:50 – 16:20 Pause

16:20 – 17:00 Optimizing Selective Laser Sintering (SLS) through Digitalization, Automation, and Machine Learning
Nico Geis, NMB
This talk presents the SLS demo factory at NMB Bayreuth, a research platform and technology demonstrator for industrial additive manufacturing. It integrates real-time powder analytics, digital process monitoring, and machine learning models to address key challenges in Selective Laser Sintering such as process variability, powder degradation, and reproducibility. By combining adaptive process control with zero-waste material strategies and digital product traceability, the demo factory sets new standards for sustainable, automated, and certifiable SLS production.

17:00 – 17:40 Closed-loop Control of the Laser Powder Bed Fusion Process: Applications, Challenges, and Opportunities
Dr. Baris Kavas, ETH Zurich
As Laser Powder Bed Fusion (LPBF) adoption widens across industries, however, persistent hurdles, especially in quality variability, lot-to-lot consistency, first-time yield, and the overhead of vertical integration continue to constrain its full potential. Closed-loop feedback control is gaining traction in both academia and industry as a remedy, yet meaningful deployment still faces hurdles in sensing, modeling, and on-machine execution. This talk motivates closed-loop control for LPBF and surveys practical highlights, including sensor sets that balance information content with computational cost, control objectives aligned with quality metrics such as geometry, microstructure, and surface profile, and improvement opportunities from larger layer-to-layer control loops to fast in-layer parameter updates that improve reliability and sustainability while reducing overhead for high-quality printing.

ETH Zentrum
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und online

THU

Donnerstag 13. November

Start 14:15
Ende 17:30

Ab 17:30 Apéro offeriert vom Swissmem Industriesektor SAMG

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Gesamtprogramm

Zoom Link: https://inspire.ch/url/ftk