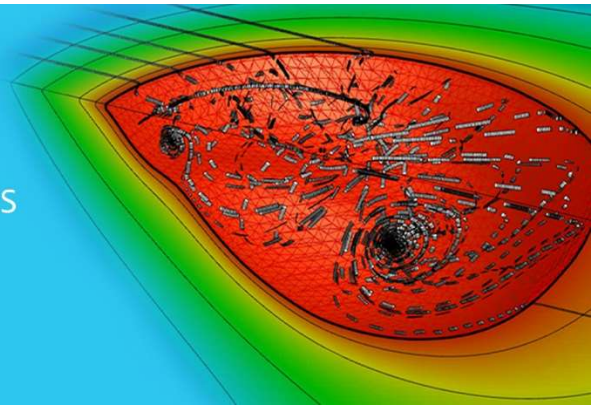


# Simulation – Laser Processes and Components

March 12–13, 2025, Dresden



## Preliminary Program

### **Day 1, Wednesday, March 12, 2025**

12:00–13:15 Opening and Lunch

#### **Introduction**

13:15–14:00 Simulation Methods and Tools in the Context of Laser Material Processing and Component Design – an Overview  
*Markus Wagner | Fraunhofer IWS*

13:30–14:00 On the Simulation of Direct Laser Interference Patterning Surface Structuring Process in Metals: Temporal Evolution of Structure Formation and Marangoni Convection  
*Andrés Lasagni | TU Dresden*

14:00–14:20 Thermal Analysis in Laser Material Processing – Challenges, Approaches and Prospects  
*Achim Mahrle | Fraunhofer IWS*

14:20–15:00 Coffee Break

15:00–15:20 Optimization of Temperature Fields in Laser Hardening of Complex Geometries  
*Marko Seifert | Fraunhofer IWS*

15:20–15:40 Thermomechanical Simulation of Large Components  
*Moritz Greifzu | Fraunhofer IWS*

15:40–16:05 Fundamentals of Ablation Induced by Ultrafast Laser Radiation  
*Markus Olbrich | Hochschule Mittweida*

16:00–17:30 Time for Hotel Check-in

17:30–22:00 Dinner & Lab Tour at Fraunhofer IWS

**Day 2, Thursday, March 13, 2025**

- 08:30–09:20 Welcome with Coffee
- 09:20–09:40 Simulation of Cutting-edge Laser-based Manufacturing Processes  
*Stefan Lutz | Schaeffler Technologies AG & Co. KG*
- 09:40–10:00 Application and Benefits of Gas Flow Simulations in Laser Material Processing  
*Madlen Borkmann | Fraunhofer IWS*
- 10:00–10:20 tbd
- 10:20–11:00 Coffee Break
- 11:00–11:20 Simulation of Laser Welding for Larger Components  
*Maialen Arei-tioaurtena Oiartzu | IKERLAN*
- 11:20–11:40 Simulation and Experimental Investigation for the Design and Evaluation of Laser-welded Components  
*Axel Jahn | Fraunhofer IWS*
- 11:40–12:00 tbd
- 12:00–12:20 tbd
- 12:20–13:30 Lunch and Farewell