

**Interdisziplinäres Zentrum  
für Wissenschaftliches Rechnen**

**Forschungsgruppe  
Mehrphasenströmungen und Verbrennung**

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**16. October 2024**

Short Course: „Realization of the Energy Transition: Thermochemical Energy Conversion Processes for the Flexible Utilization of Hydrogen-based Renewable Fuels Using Additive Manufacturing“

Organizer: Prof. Eva Gutheil

Place/Time: Interdisciplinary Center for Scientific Computing, Heidelberg University

INF 205 (Mathematikon), 5.104 (Conference Room), 3.- 4.12.2024

**Tuesday, December 3, 2024**

- 13.00-13.05 *Welcome and Scope*  
Prof. E. Gutheil, Interdisciplinary Center for Scientific Computing, Heidelberg University, Heidelberg
- 13.05-14.05 *Powder Bed Fusion of metals: Chances and Challenges*  
Prof. J. T. Sehart, Chair of Hybrid Additive Manufacturing, Ruhr University Bochum
- 14.05-15.05 *Simulation of the combustion of blends of hydrogen, ammonia, and liquid alcohols*  
Prof. E. Gutheil, Interdisciplinary Center for Scientific Computing, Heidelberg University, Heidelberg
- 15.05-15.30 Coffee break
- 15.30-16.30 *Combustion of ammonia in porous media*  
Prof. D. Trimis, Chair for Combustion Technology, Karlsruhe Institute of Technology, Karlsruhe
- 16.30-17.00 General discussion
- 19.00-21.00 Dinner, Old Town Heidelberg

**Short Course „Realization of the Energy Transition“, cntd.**

**Wednesday, December 4, 2024**

- 9.00-10.00 *Characterization of sprays*  
Prof. G. Brenn, Institute of Fluid Mechanics and Heat Transfer, Graz University of Technology, Austria
- 10.00-10.30 Coffee break and discussion
- 10.30-11.30 *Germany's positioning in the international AM competition*  
Prof. C. M. Seidel, Smart Manufacturing Lab, Hochschule München, University of Applied Sciences
- 11.30-12.45 Lunch break
- 13.00-14.00 *Direct Numerical Simulation of combustion with a focus on ammonia*  
Prof. D. Thévenin, Institut für Strömungstechnik und Thermodynamik, Magdeburg University, Magdeburg
- 14.00-15.00 *Optimization of Internal Combustion Engines Using CFD and AI*  
Dr. H.W. Ge, Zhejiang Laboratory, Hangzhou, China
- 15.00-15.30 Coffee Break
- 15.30-16.30 *Open Discussion, Perspectives and Closure*
- 16.30 End of the Short Course

**Participation is possible after registration before November 28, 2024:**

Please send full name, affiliation, position and Email address to  
Felicitas Hirsch: [felicitas.hirsch@iwr.uni-heidelberg.de](mailto:felicitas.hirsch@iwr.uni-heidelberg.de)

*Please note that the number of participants is limited.*

This short course is co-funded by HGS MathComp and is part of the HGS MathComp training program.  
PhD fellows of HGS may be awarded 1 ECTS on completion of the course.