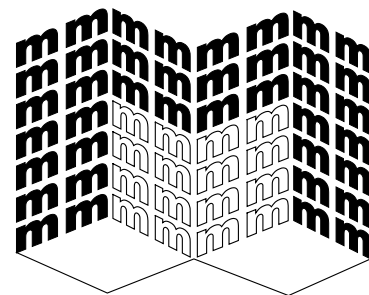

Micro-Macro-Interactions

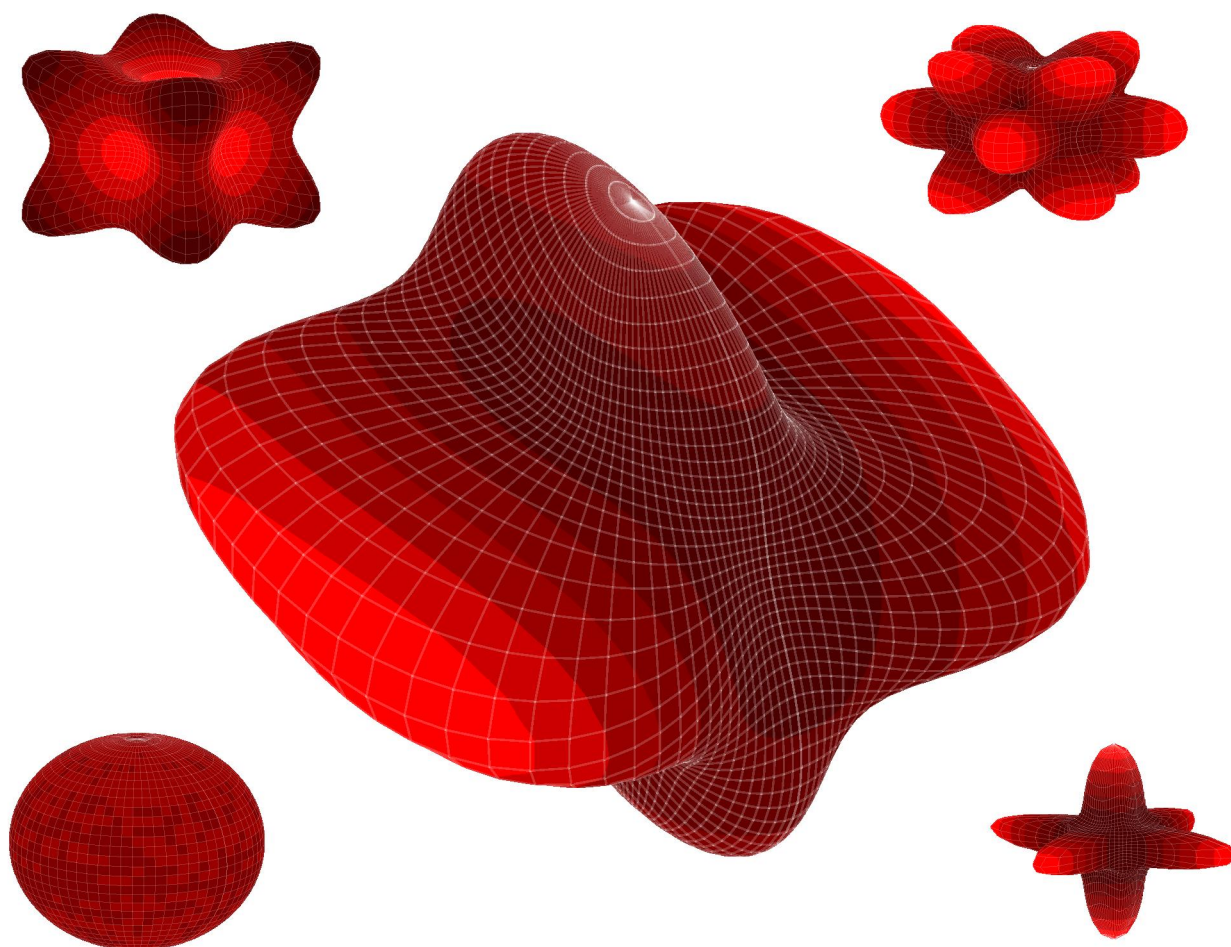
of Structured Media and Particle Systems



Programme

Magdeburg

Final Workshop 2019



Preface

The research training group 1554 is located at the Otto von Guericke University, Magdeburg (OvGU) and is financed by the German Research Foundation (DFG). The members are PhD students, post-docs, and professors from the faculties of mechanical engineering, process and systems engineering, mathematics and natural sciences. Their working areas cover topics from different engineering branches, applied mathematics as well as theoretical and computational physics.

In order to promote scientific exchange and discussions, workshops take place twice a year. These semi-annual workshops are traditionally organized by the PhD students themselves.

This document contains all necessary information for the Final Workshop of the DFG research training group *Micro-Macro-Interactions of Structured Media and Particle Systems*, which will take place at *Festung Mark* in *Magdeburg* from June 20th to 22nd, 2019.

Magdeburg, May 10th, 2019

Madeleine Ruhbaum, Sebastian Dieck & Joachim Nordmann

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1 Locations and Travel Guide

1.1 Locations

Event Location

**Festung Mark
Hohepfortewall 1
39104 Magdeburg**

+49 (0) 391/99093330
mail@festungmark.com
www.festungmark.com

Hotel

**Motel One Magdeburg
Domplatz 5
39104 Magdeburg**

+49 (0) 391/5555450
magdeburg@motel-one.com
www.motel-one.com/de/hotels/magdeburg

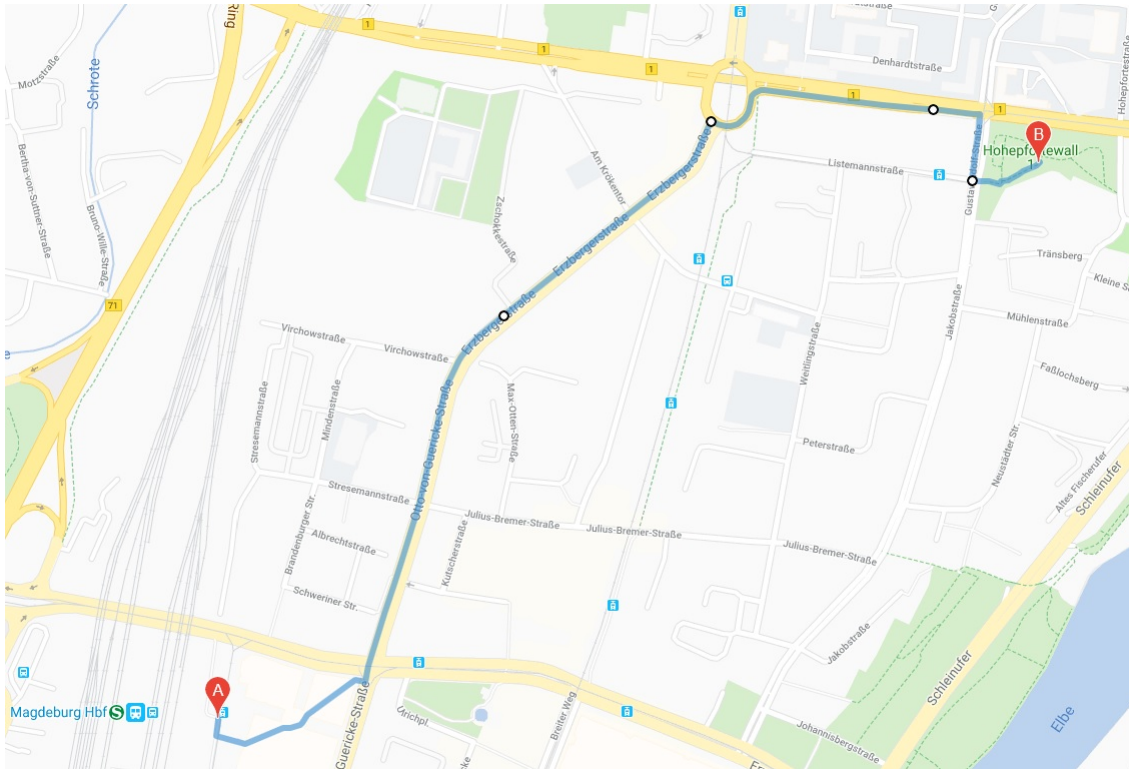
Restaurant

**Elbelandhaus
Benediktinerstraße 6
39104 Magdeburg**

+49 (0) 391/4006770
info@elbelandhaus.de
www.elbelandhaus.de

1.2 Travel Guide

1.2.1 Route from *Central Station* to *Festung Mark*

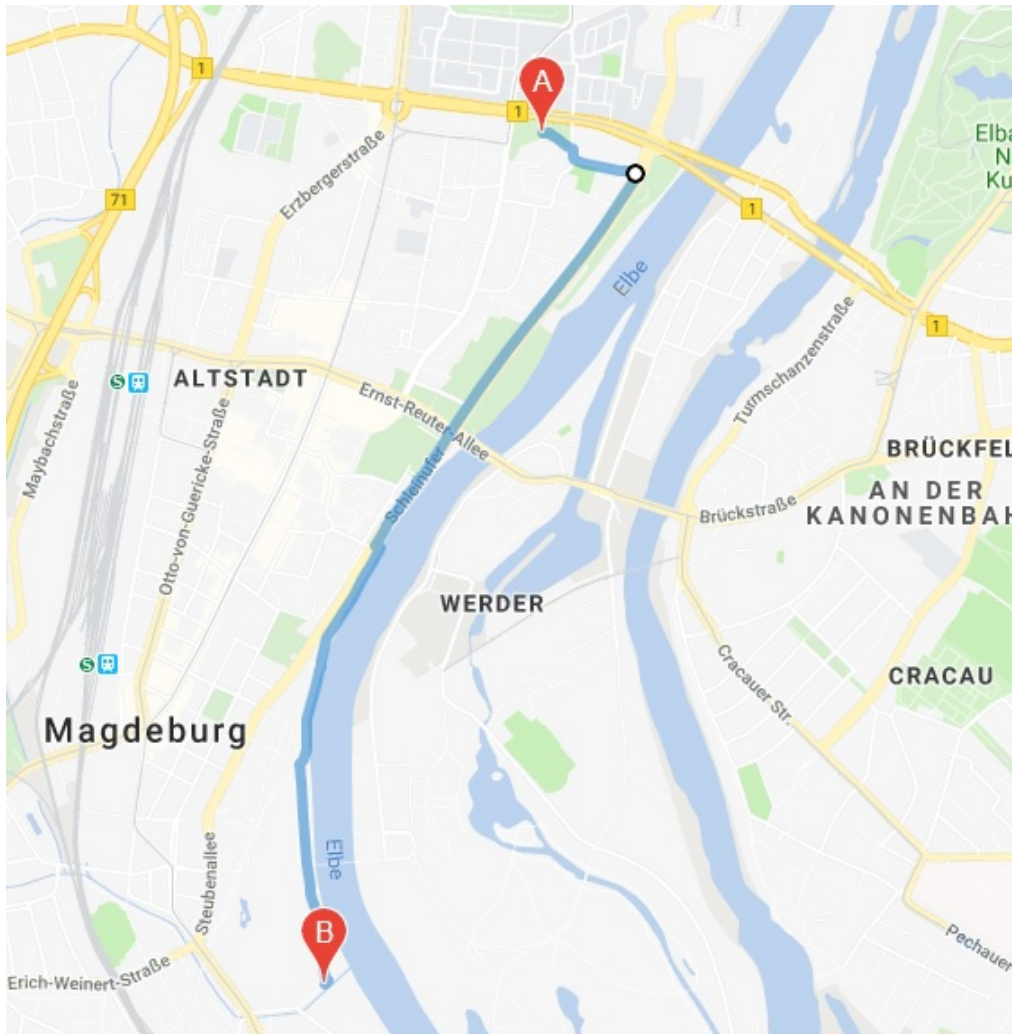


- go through *City-Carré* to Otto-von-Guericke-Straße
- go to Universitätsplatz
- follow Walther-Rathenau-Straße to *Festung Mark*

Alternative Route

- go to Tram station "Leiterstraße"
- take Tram 2 to station "Listemannstraße"
- cross Gustav-Adolf-Straße and you are at *Festung Mark*

1.2.2 Route from *Festung Mark* to *Elbelandhaus*

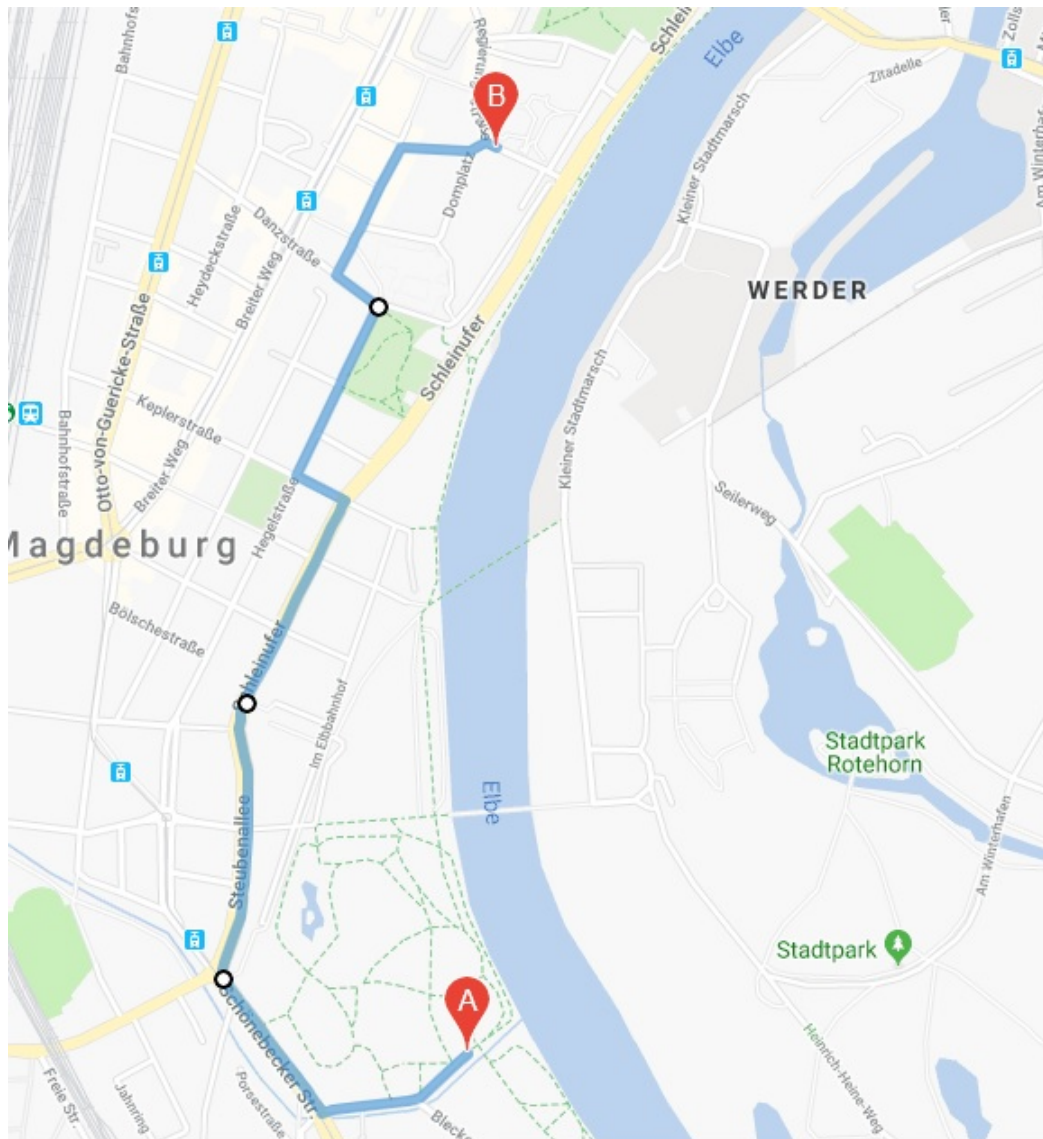


- go to the river
- follow the river until you reach the restaurant *Elbelandhaus*
- the distance is ca. 5 km

Alternative Route

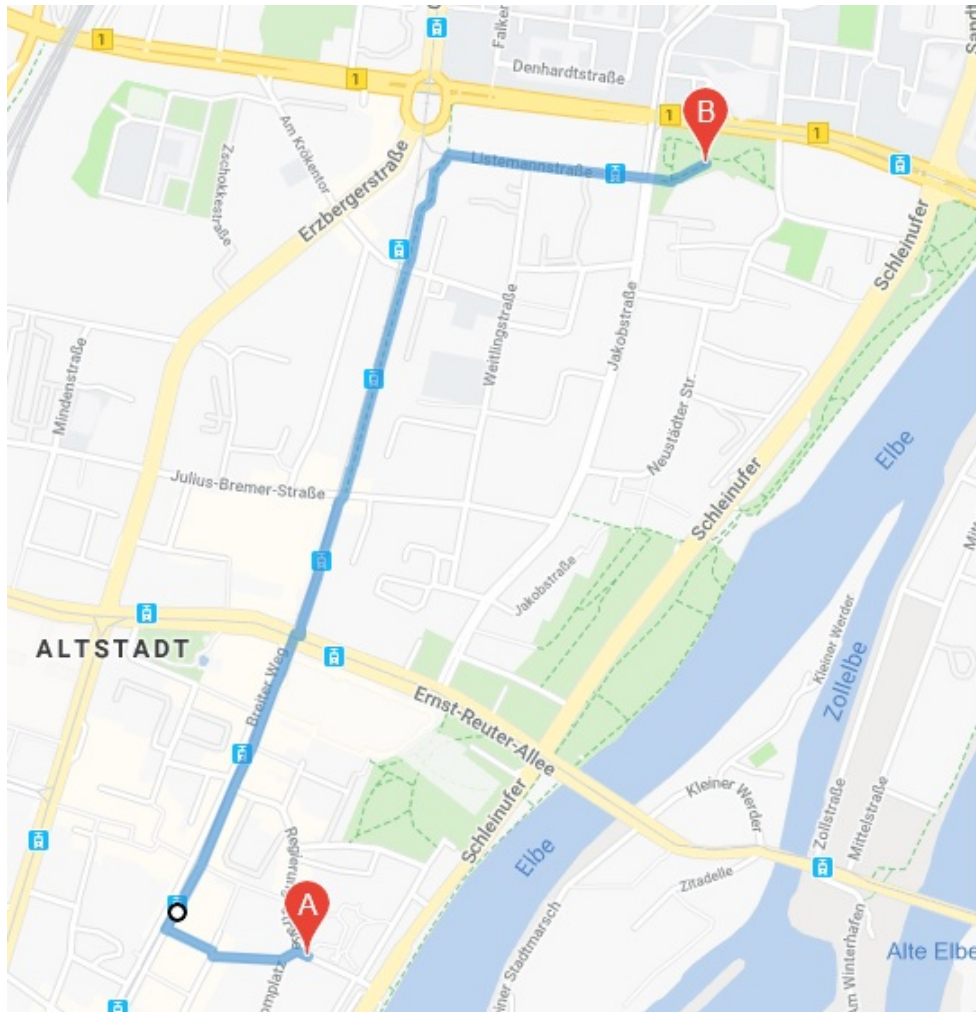
- go to Tram station "Listemannstraße"
- take Tram 2 to station "Warschauer Straße"
- go to Benediktinerstraße
- follow the street down to restaurant *Elbelandhaus*

1.2.3 Route from *Elbelandhaus* to the Hotel



- go from *Elbelandhaus* to Schönebecker Straße
- follow the street until you reach Steubenallee
- follow Steubenallee (later called Schleinufer) to crossing Keplerstraße
- go from Keplerstraße to Hegelstraße
- follow Hegelstraße until you reach the MAGDEBURGER Dom
- go around MAGDEBURGER Dom and you are in front of your hotel

1.2.4 Route from the Hotel to *Festung Mark*



- go from the hotel to Tram station "Domplatz"
- take Tram 2 to station "Listemannstraße"
- cross Gustav-Adolf-Straße and you are at *Festung Mark*

2 Timetable

2.1 Thursday, June 20th, 2019

13:00	Opening Speech of the Speaker		
S1	Chair: Joachim Nordmann		
13:30	Abdolreza	Kharaghani	Drying of capillary porous media: A route for formally connecting mesoscopic pore network simulations and macroscopic models
13:50	Maryam	Dadkhah	A new laser for applications in ophthalmology
14:10	Vikranth Kumar	Surasani	Lattice Boltzmann Simulations for Drying of Capillary Porous Media
14:30	Coffee Break		
S2	Chair: Seyed Ali Hosseini		
14:50	Nicole	Vorhauer	Advanced drying technologies - what we have learned from micro scale studies
15:10	Yashodhan	Gokhale	Lithium ion battery materials - Electric Mobility
15:30	Pavan	Penumakala	Micro-macro interactions during stir casting of graphene-based metal matrix composites
15:50	Ashok Kumar	Nallathambi	The role of water cooling on thermomechanical aspects of metal casting process
16:10	Guided Tour through the FESTUNG MARK		
18:00	Dinner at ELBELANDHAUS		

2.2 Friday, June 21st, 2019

09:00	Opening		
S3		Chair: Christoph Matern	
09:10	Manoj	Khanal	Mechanical Processing of Mineral Particles: Numerical and Experimental Study
09:30	Srihari	Dodla	Micromechanical formulation of the high fidelity generalized method of cells of two-phase composites
09:50	Esmaeil	Tohidlou	Crystal plasticity and grain refinement during metal forming process
10:10	Coffee Break		
S4		Chair: Xiang Lu	
10:30	Shyamal	Roy	The size-effect in nanoindentation of Au nanoparticles: a multi-scale study
10:50	Naveed	Ahmed	Numerical comparisons of finite element stabilized methods for a 2D vortex dynamics simulation at high Reynolds number
11:10	Dana	Zöllner	Biom mineralization - Building complex microstructures
11:30	Coffee Break		
S5		Chair: Olha Kauss	
11:50	Rajesh	Kumar	Tensor Train Approximation for High Dimensional PDEs with Gaussian Source Terms
12:10	Nagaiah	Chamakuri	Multiscale Modeling and Numerical Simulation of Calcium Cycling in Cardiac Myocyte
12:30	Nicole	Vorhauer	Women in Science - A retrospective view on the GK Micro-Macro 2
12:50	Lunch (approx. 90min)		
S6		Poster Session	
	Martin	Weber	Material plasticity using the example of fiber reinforced materials
	Zhengkun	Liu	Phase-Field Modelling of Thermoelastic Fracture in Functionally Graded Materials
	Resam	Makvandi	A phase-field fracture model based on strain gradient elasticity
	Jannik	Voges	A phase field model for deformation-coupled chemical reactions

	Joachim	Nordmann	Cracking & Delamination Analysis by Using Cohesive Zone Models
	Behnaz	Bagheri	Identification of traction-separation curves for self-adhesive polymeric films based on Digital Images of T-peeling
	Olha	Kauss	Estimation of the mechanical properties of high temperature Mo base alloys
	Janett	Schmelzer	Additive manufacturing of multi-phase V-Si-B alloys
	Sebastian	Hütter	Free Energy Calculations of Solids and Liquids from Classical Atomistic Simulations
	Julia	Becker	Mechanical Properties of Density Reduced Mo-Alloys
	Sebastian	Dieck	Q&P heat treatment for martensitic stainless steel
	Omid	Kazemi	Phase-Field simulation of Microstructure and reaction sequence of Mo-Si-B alloy solidification process
	Abbas	Kamranian Mar-nani	The effect of the presence of ultra-fine particles on fluidization, compression and re-fluidization of a fine particle bed
	Christoph	Matern	The Riemann problem for a weakly hyperbolic two-phase flow model of a dispersed phase in a carrier fluid
	Hazem	Yaghi	Riemann problem for a diffuse interface model
	Seyed Ali	Hosseini	Hybrid Lattice Boltzmann-Finite Differences solver for multi-species reacting flows
	Xiang	Lu	Continuum model parameters for drying porous media estimated from pore network simulations
	Yuan	Fang	Investigation of surface roughness on heat transfer during metal cooling with different strategies
	Abhinandan Kumar	Singh	Simulating the spray fluidized bed agglomeration by modeling the morphology
	Reihaneh	Pashminehazar	COMPARISON OF SPATIAL MORPHOLOGY FOR REAL STRUCTURE AND SPHERICAL MODEL OF AGGLOMERATE
14:20	Poster Session and Coffee Break		
16:00	Guided Tour through MAGDEBURG (optional)		
18:30	Dinner & Festivity		

2.3 Saturday, June 22nd, 2019

10:00	Opening		
S7		Chair: Sebastian Hütter	
10:10	Sashikumar	Ganesan	Finite element computations of viscoelastic flows with moving boundaries
10:30	Manja	Krüger	The understanding of micro-macro interactions in multi-phase Mo-based alloys
10:50	Katja	Mader-Arndt	From Particles to Pyrotechnics
11:10	Coffee Break		
S8		Chair: Joachim Nordmann	
11:30	Sergiy	Antonyuk	Surface microstructuring by cold spraying particles for modification of macroscopic phenomena
11:50	Holm	Altenbach	THE END
12:10	Concluding Remarks		
12:15	Lunch		
14:00	Departure		

Please check the website of the research training group for updated versions of the programme:
www.grk1554.ovgu.de

3 List of Participants

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Otto **Bruhns**

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Maryam **Dadkhah**

Srihari **Dodla**

Ulrich **Gabbert**

Norbert **Gaffke**

Sashikumar **Ganesan**

Yashodhan **Gokhale**

Mubashir **Hussain**

Manoj **Khanal**

Rajesh **Kumar**

Katja **Mader-Arndt**

Suresh **Nadupuri**

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Fabian **Weigler**

Dana **Zöllner**