

# Workshop on 'Multiscale transport of particles'

Sept 14-16, 2015

## Description of the workshop:

The focus of the workshop lies on experimental and mathematical aspects of

- multiscale transport of mixtures of interacting particles,
- general interactions and transport phenomena of differently sized particles (PDE models, gradient flow structure, entropy techniques).

Since the aim is to initiate collaborations on open problems in the topics mentioned above, the schedule of the workshop includes plenty of time for discussions.

**Location:** WPI Vienna (8th floor), University of Vienna, Oskar-Morgenstern-Platz 1, 1090 Vienna

## Participants:

### Organizers:

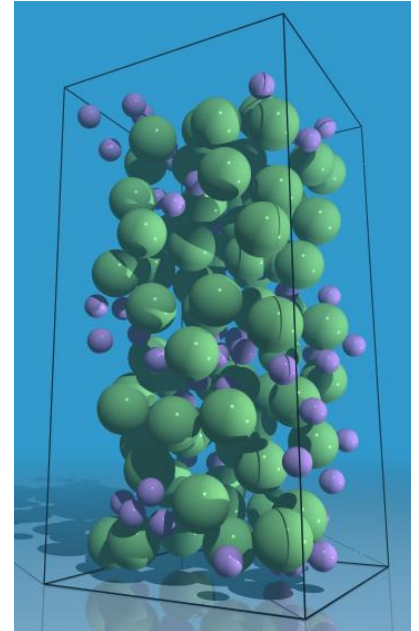
- Maria Bruna (University of Oxford)
- Jan-Frederik Pietschmann (WWU Münster)
- Marie-Therese Wolfram (RICAM)

### Speakers:

- Ansgar Jüngel (TU Vienna)
- Jon Chapman (University of Oxford)
- Jay Newby (University of North Carolina)
- Hartmut Löwen (University of Düsseldorf)
- Ulrich Dobramysl (University of Oxford)
- Rüdiger Müller (WIAS Berlin)
- Ulisse Stefanelli (University of Vienna)
- Esther Daus (TU Vienna)

### PhD students participating:

- Bartłomiej Matejczyk (RICAM)
- Helene Ranetbauer (RICAM)
- Judith Berendsen (WUU Münster)



## **Schedule for the mini-workshop on 'Multiscale transport of particles'**

### **Monday 14 Sept**

Morning (free for people to arrive)

12:00 - 13:00 Lunch

13:00 - 13:30 Registration + Welcome

13:30 - 14:00 Discussion talk by Maria Bruna on cross-diffusion models for off-lattice and gradient flow

14:00 - 14:30 Discussion talk by Jan-Frederik Pietschmann on cross-diffusion from on-lattice and inverse problems

14:30 - 15:00 Discussion talk by Marie-Therese Wolfram on interaction with fluids

15:00 - 15:30 Coffee break

15:30 - 16:15 Ansgar Juengel 'Modeling and analysis of multi-species systems in biology'

16:15 - 17:00 Jon Chapman 'Excluded volume effects in drift diffusion'

17:00 - 17:30 Discussion

19:00 Workshop dinner at Heurigen Hengl-Haselbrunner (leaving together from the Hotel Deutschmeister at 18:30)

### **Tuesday 15 Sept**

10:00 - 10:45 Jay Newby

10:45 - 11:15 Coffee break

11:15 - 12:00 Hartmut Loewen 'Phase separation and turbulence in active systems'

12:00 - 14:00 Lunch

14:00 - 14:45 Ulrich Dobramysl 'Exploring unknown environments - from robot experiments to numerical modelling'

14:45 - 15:30 Ruediger Müller 'Modeling of ion transport'

15:30 - 17:30 Coffee break and discussions

### **Wednesday 16 Sept**

10:00 - 10:45 Ulisse Stefanelli 'The WED principle in metric spaces'

10:45 - 11:15 Esther Daus 'Hypocoercivity for a linearized multi-species Boltzmann system'

11:15 - Coffee and discussions