Research Team: CFD Group, TU Wien

Head: Hendrik C. Kuhlmann

Presenter: Christiane Lechner

Annual Workshop, COST Action MP1106
Dublin, September, 2012

Team's general info

Research Team Name: Computational Fluid Dynamics Group
Institute of Fluid Dynamics and Heat Transfer
Vienna University of Technology (TU Wien)

Number of team members: 15
Team leader: Hendrik C. Kuhlmann

- 3 post-docs
- 5 PhD students
- 2 M.S. students
- 4 undergraduate students
- 1 technician

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Relevance to MP1106

Research interests related to MP1106

- Marangoni convection
- falling films
- DNS of particulate flow
- particles close to a phase boundary (liquid/gas, liquid/solid)

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Lab description

TU Wien: several systems for high performance computing, e.g.

- 240 CPU Intel Xeon Cluster
- Vienna Scientific Cluster (3 universities)
  - VSC-1: 3968 processor cores, 35.5 TFlops
  - VSC-2: 21024 processor cores, 135.6 TFlops

Institute:

- 4 compute nodes (2 Intel Nehalem processors, 24 GB memory each)
- Laboratory

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\# 1 project: Marangoni instability,
dynamics of suspended particles in periodic vortex flows
for JEREMI (space experiment launching 2015)

Titles: EMA, Engineering Marangoni Flows
Technical assistance for the definition and preparation
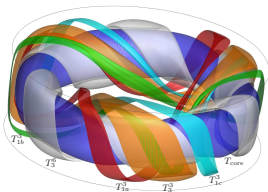of the JEREMI project on the ISS

Duration: 18 months $+$ 24 months

Funding organizations: Austrian Research Promotion Agency (FFG), ESA

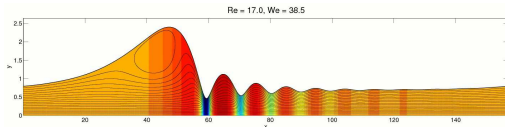People: H.K., 2 post-docs, 1 PhD

Schwabe, 2007

2 project: falling film: absorption enhancement due to waviness
for absorption refrigeration

Title: AbsoFluid
Duration: 30 months
Funding organization: FFG
People: 1 PhD student

falling film:
streamlines, pressure
in co-moving frame

3 project: finite-sized particle close to a wall
                particle removal by hydrodynamic forces
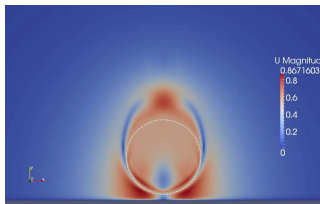
Title: RoWaFlowSim
Duration: 3 years
Funding organizations: FFG, Lam Research
People: 1 post-doc
code for finite-sized particles interacting with a wall
immersed boundary method implemented in OpenFOAM

Topics for Research Proposal

Topics: bubbles, droplets

- near interfaces
- Marangoni convection

Expertise required: experimental partner

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Thank you for your attention

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