

Plenary Session

Division Civil Security and Traffic as a
part of the Forschungszentrum Jülich

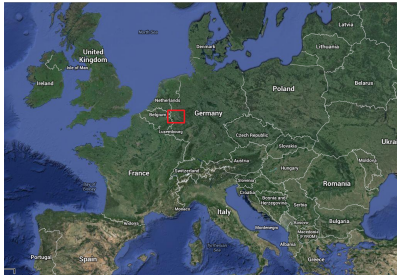
April 8, 2014 | Kevin Drzycimski | JSC/Research Centre Jülich

Plenary Session

Part I: Forschungszentrum Jülich

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Forschungszentrum Jülich

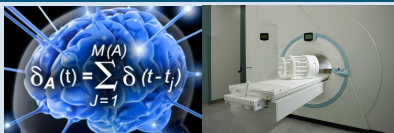


- 9 institutes consisting of 55 facilities on 2.2 km²
- More than 5000 people: scientists, technicians and service
- Founded 1956 as Nuclear Power Research Facility

Forschungszentrum Jülich

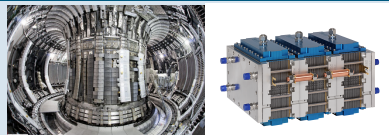
Key Technologies

Health



Human Brain, 9.4T MRT, ...

Energy



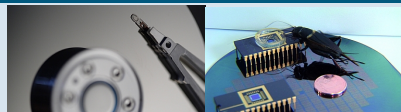
Fusion, Fuel Cells, ...

Environment



Atmosphere, Plants, ...

Information



GMR-Effect, Bioelectronics, ...

Forschungszentrum Jülich

Expertise

Education



- School laboratory
- Job Training
- Bachelor, Master, PhD Students
- Professorships

Transfer



- Publications (2.233 in 2012)
- Cooperations with Industries and Universities
- Conferences
- Company foundations

Plenary Session

Part II: Jülich Supercomputing Centre JSC

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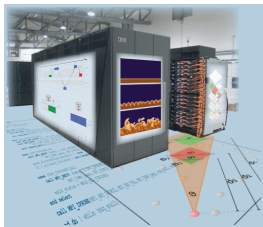
Jülich Supercomputing Centre



- Former name: Central Institute of Applied Mathematics
- More than 200 people in 10 Divisions

Jülich Supercomputing Centre

Expertise



Computing

- Supercomputers
- Simulation Laboratories
- Support

Infrastructure

- Network
- Storage
- Grid Computing

UNICORE

Education

- Mathematical technical Software Developers
- Trainings, Workshops

Jülich Supercomputing Centre

Supercomputers



JUQUEEN

- 8th fastest Supercomputer
- 458.752 IBM PPC cores
- 448 TB RAM

JUROPA

- General Purpose
- 26304 Intel Xeon cores
- 79 TB RAM

JUDGE

- GPU-Computing
- 2472 Intel Xeon cores
- 412 NVIDIA Tesla Graphic cards

Plenary Session

Part III: Civil Security and Traffic

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Civil Security and Traffic

Members



Civil Security and Traffic

BaSiGo Experiments



- World's largest pedestrian experiments
- 2060 participants over 4 days
- 24 industry cameras tracked the people by their special hats

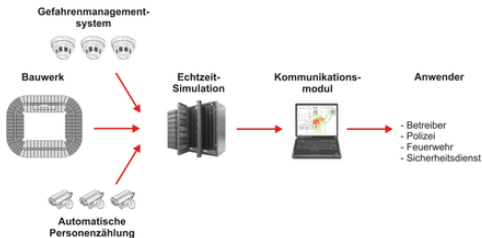
Civil Security and Traffic

BaSiGo Experiments



Civil Security and Traffic

Hermes

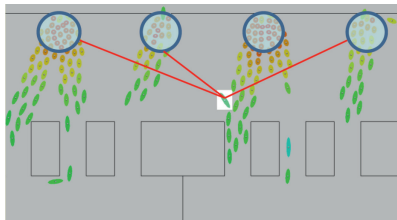


Realtime Evacuation Assistant

- Track people with cameras
- Predict future (5, 10 and 15 minutes)
- Show possible critical areas

Civil Security and Traffic

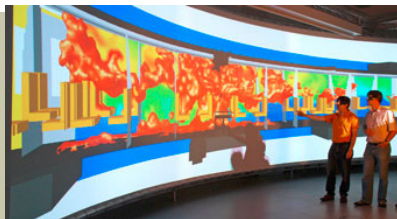
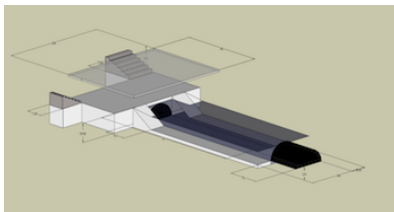
JuPedSim



Juelich Pedestrian Simulator

- Force-based model
- Open Source
- Simulation, Visualization and Analysis

Civil Security and Traffic Subway Stations

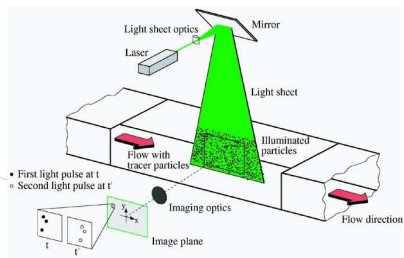
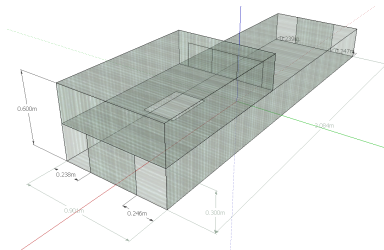


Fire and Pedestrian Safety

- Simulations with FDS and JuPedSim
- upcoming project with many partners
- Small scale experiments

Civil Security and Traffic

Subway Stations



Small scale experiments

- Idealized subway station
- Acrylic glass model of scale 1:10
- Temperature sensors and Particle Image Velocimetry

The End

Thank you for your attention

Any questions?

