JSC Division "Civil Safety and Traffic" Becomes a Separate Subinstitute (IAS-7)

In March this year, the new Civil Safety Research subinstitute (IAS-7) was founded out of the JSC division Civil Safety and Traffic. The subinstitute's main focus of research is on crowd and fire dynamics in the context of civil engineering and safety science. The four IAS-7 divisions, Pedestrian Dynamics – Empiricism, Pedestrian Dynamics – Theory, Fire Dynamics, and Engineering Applications, aim to create new numerical models and validation experiments. The spectrum of methods developed includes agent-based models and computational fluid dynamics. The experiments range from small-scale fluid dynamics to pedestrian dynamics experiments involving hundreds of people.

The subinstitute can call on a broad spectrum of expertise, ranging from mathematicians and physicists to engineers and architects. Current third-party projects are concerned with railway infrastructure during regular operation as well as during large-scale evacuation scenarios. In addition to the close partnerships with national and international universities, such projects broaden the institute's network to include collaboration with fire brigades and crisis teams. Furthermore, there is a close partnership with the University of Wuppertal, where lectures are held and theses are supervised by members of the subinstitute.

The new subinstitute's expertise in combining the fields of crowd and fire dynamics puts it in a globally unique position. IAS-7 enhances the scientific scope of the Institute for Advanced Simulation (IAS) to address emerging challenges in growing cities and the increasing demands placed on transport infrastructure. Further information can be found at http://fz-juelich.de/ias/ias-7.

Contact: Prof. Armin Seyfried, a.seyfried@fz-juelich.de

InHPC-DE Project Boosts High-Speed Data Connection of GCS Centres

The three GCS centres – High Performance Computing Center Stuttgart (HLRS), Jülich Supercomputing Centre (JSC), and Leibniz Supercomputing Centre in Garching near Munich (LRZ) – have each recently boosted their connections to Germany's high-speed X-WiN network, operated by the German National Research and Education Network (DFN), to a data transfer speed of 2x100 Gbit/s. This infrastructural boost not only enables users to transfer the large datasets generated on GCS resources back to their home institutions more easily, but also facilitates the use of multiple centres by reducing the data transfer time between GCS centres by roughly one order of magnitude.

The upgrade was performed with the aid of the BMBF-funded project InHPC-DE, which was launched in late 2017 with the objective of pooling Germany's leading high-performance computing (HPC) resources, providing users a means of performing simulations on the widest range of computer architectures, and ultimately offering a virtual HPC centre experience.

In the next phase of the project, the three centres will work together to develop more advanced data and workflow services as well as capabilities for distributed, collaborative, and real-time visualizations. The infrastructural foundations for this project phase are currently being laid by deploying additional disk and tape storage capacity and ensuring that the internal networks meet the new speed requirements. At JSC, this includes a new extended capacity disk storage tier (XCST) and a magnetic tape library with a capacity of 170 PB.

Contact: Dr. Thomas Eickermann, th.eickermann@fz-juelich.de

New GCS Large-Scale Projects in November 2018

Twice a year, the Gauss Centre for Supercomputing (GCS) issues a call for large-scale projects on its petascale supercomputers – currently Hazel Hen (HLRS), JUWELS (JSC), which replaced its predecessor JUQUEEN last May, and SuperMUC/SuperMUC-NG (LRZ). Large-scale projects are classified as such if they require at least 35 million compute core hours (Mcore-h). During its October meeting at JSC, the GCS Peer Review Board took the decision to award large-scale project

status to 13 projects from various scientific fields. Two projects were granted 186 Mcore-h on Hazel Hen; three projects were granted 124 Mcore-h on JUWELS; and eight projects were granted 507 Mcore-h on SuperMUC. In total, the GCS awarded around 817 million compute core hours to large-scale projects. For more details on these projects, please visit http://www.gauss-centre.eu/large-scale.

Contact: Dr. Alexander Trautmann, coordination-office@fz-juelich.de

NIC Excellence Project – November 2018

The NIC Peer Review Board regularly awards NIC Excellence Project status to outstanding simulation projects. At its October meeting, the board took the decision to honour Dr. Frank Lechermann (Institute for Theoretical Physics, University of Hamburg) for his project "Competing Phases in Strongly Correlated Materials". The project, which has been granted computing time on JUWELS, aims to investigate the complex interplay between atomic degrees of freedom. This is relevant to understanding the fundamental physical processes in condensed matter and materials with potential for technological applications. In particular, the project focuses on the challenging compounds of transition-metal elements with oxygen, in which there is strong competition between the free movement and the spatial localization of the charge carriers. For more details, please visit http://www.john-von-neumann-institut.de/nic/lechermann (in German).

Contact: Dr. Alexander Trautmann, coordination-office@fz-juelich.de

JSC Hosts Award Ceremony for PRACE Summer of HPC 2018

The Summer of HPC (SoHPC) programme, now in its sixth year, allows 20–25 university students from all scientific disciplines to spend eight weeks of study hosted by a PRACE partner organization. In addition to providing students with the opportunity to work on research projects in a multidisciplinary and international environment, the aim of the SoHPC programme is to promote and disseminate a scientific culture among the upcoming generation of researchers, helping the students participating in the project to become the computational scientists of tomorrow. Furthermore, the programme encourages the students to share their experiences in blog posts and video presentations, enabling them to become supercomputing ambassadors at their respective institutions.

The programme encompasses a week of HPC training at one of the PRACE partner organizations at the start of the programme as well as an award ceremony after the end of the programme. The 2018 PRACE SoHPC Award Ceremony was held at JSC on 23 October. Two out of 23 outstanding students were awarded prizes based on their performance and outreach during the programme. This year's winners, Conor O'Mara (Trinity College Dublin) and Sukhminder Singh (Friedrich-Alexander-University Erlangen), who spoke about their experiences participating in

the SoHPC programme at the ceremony, each received a € 1500 prize to attend an HPC conference of their choice along with a trophy.

More information on how to join the 2019 programme can be found on the Summer of HPC's website: http://www.summerofhpc.prace-ri.eu

Contact: Dr. Ivo Kabadshow, i.kabadshow@fz-juelich.de

End-of-Year Colloquium at JSC

Date: Thursday, 13 December 2018, 09:30–16:00
Venue: Jülich Supercomputing Centre, lecture hall (Hörsaal)
Info: http://www.fz-juelich.de/ias/jsc/events/eoy-2018

09:30	Thomas Lippert: *Welcome*
09:45	Michael Stephan, Olaf Mextorf: *JUWELS und seine Vernetzung – Ein Blick unter die Haube des modularen europäischen Tier-0 Supercomputers*
10:15	Stefanie Janetzko, Stephan Graf: *Where is my data? – The new Jülich Usage Model*
11:00	Coffee break
11:30	Jens Henrik Göbbert: *10 PetaFLOPS im Browser*
12:00	Ruth Schöbel: *Projekt ParaPhase: Das gleichzeitige Durcheinander des Miteinanders beim Lösen schwieriger Differentialgleichungen*
12:30	Lunch break
14:00	Xue Wu: *From satellite observations to model simulations: tracing the global impact of volcanic eruptions*
14:30	Martin Schultz: *From Big Data to Great Data*
15:00	Kai Krajsek: *Wissenschaftliche Analytik großer Datenmengen – Ein historischer Überblick und aktuelle Herausforderunge*n
15:30	Thomas Lippert: *PRACE – Anfänge und Zukunft des Supercomputing in Europa*

Events

Optimization and scaling workshop
Instructors: Intel representatives, JSC staff members
Date: 18-22 February 2019, 09:00-16:30
Venue: Jülich Supercomputing Centre, Rotunda
http://www.fz-juelich.de/ias/jsc/events/scaling-ws

Parallel and Scalable Machine Learning
Instructors: Prof. Morris Riedel, Dr. Gabriele Cavallaro, JSC
Date: 25-27 February 2019, 09:00-16:30
Venue: Jülich Supercomputing Centre, Rotunda
http://www.fz-juelich.de/ias/jsc/events/machine-learning

Introduction to Python
Instructors: Martin Lischewski, Sebastian Linner, JSC
Date: 11-13 March 2019, 08:30-16:30
Venue: Jülich Supercomputing Centre, Computer Lab 1
http://www.fz-juelich.de/ias/jsc/events/python

For further events, talks, and training courses, please visit: http://www.fz-juelich.de/ias/jsc/events