Festive Colloquium Marks the 30th Anniversary of the HLRZ and NIC

The scientific community has historically struggled with a large variety of numerical problems in fields such as fluid dynamics, quantum mechanics, and many more. The advent of supercomputers in the 1970s led to major steps forward in solving these problems. However, these resources were not readily available. This changed in 1987, when the Höchstleistungsrechenzentrum (HLRZ)–the forerunner of today's John von Neumann Institute for Computing (NIC)–was founded at the Forschungszentrum Jülich (FZJ). This made supercomputing far more accessible to a broad community. Thirty years later, FZJ can celebrate NIC's 30th anniversary by commemorating the centre's contribution to the field of computational science.

It all began a few years earlier, when Prof. Friedel Hoßfeld, who was heading the Zentralinstitut für Angewandte Mathematik (ZAM) in Jülich at the time, began to campaign decisively for the use of the then newly emerging supercomputers to be used in natural sciences and technology, taking an early lead and acting as a visionary in this new field. He argued that next to the proven methods of theoretical models and experimental verification, the new tool of simulation should advance sufficiently to become a third source of scientific knowledge and insight. Naturally, he always insisted on the latest and most powerful computers available for a given period. As such, the era of supercomputing in Jülich began in 1983 with the installation and use of the vector processor Cray X-MP22, which was the world's fastest computer at the time.

Prof. Binder (right), the chairman of the NIC Scientific Council congratulates Prof. Hoßfeld.

From the mid-80s onwards, Prof. Hoßfeld also began to engage himself increasingly in science management. He came to be a member of the commissions of the scientific council, which developed recommendations for the development of high-performance computing (HPC) in Germany. An important step was the founding of the HLRZ in 1987 as a joint venture between the FZJ, the Deutsche Elektronen-Synchrotron (DESY) and the Gesellschaft für Mathematik und Datenverarbeitung (GMD). The HLRZ was the first institution in Germany to offer supercomputer capacity together with the ZAM as well as consulting and support for the use of the machines on a national level. After the GMD left the venture, the FZJ and DESY confirmed their commitment and founded the NIC as a successor to the HLRZ in 1998. Later, the Gesellschaft für Schwerionenforschung (GSI) joined this

Prof. Lippert, the head of the JSC, gives a presentation of the current state of today's supercomputing.

newly formed institute. The original ZAM went on to become today's Jülich Supercomputing Centre (JSC), while Prof. Hoßfeld became synonymous with HPC in Germany, most notably in Jülich itself. Prof. Hoßfeld retired in 2002.

On September 1, 2017, JSC hosted HLRZ's 30th anniversary celebration–together with Prof. Hoßfeld's 80th birthday–with a festive colloquium. The event provided a welcome opportunity to look back on some remarkable achievements and highlights made possible by simulation on high-performance computers in recent years. After a warm welcome by Prof. Sebastian Schmidt, member of the board of directors of FZJ, Prof. Kurt Binder, the chairman of the NIC Scientific Council, presented the answers to complex questions arising in the field of soft matter physics—a research area in which supercomputing has provided insights. Prof. Wolfgang Nagel from TU Dresden, who was a PhD student of Prof. Hoßfeld and JSC staff member in the 90s, looked back at the origins of parallel computing. Prof. Thomas Lippert, the head of JSC, discussed the current state of today's supercomputing, and the evolving possibilities in neural networks and deep learning. Looking to the future, Prof. Hans De Raedt from the University of Groningen gave an outlook to the coming revolution of quantum computing and the associated challenges and opportunities.

The staff and users of today's JSC and NIC would like to sincerely thank Prof. Hoßfeld for laying the foundations of these institutions and for all his ground-breaking and pioneering work. We look forward to the coming innovations with excitement and will always fondly remember the first steps into the then new field of HPC.

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