

## **Scientific Applications:**

### **EU, China to Link Up High-Speed Electronic Networks**

Communication and collaboration among 45 million researchers and students across Europe and China will be greatly facilitated by a new Sino-European high-speed network connection. Co-funded by the European Union, China and European National Research and Education Networks, the €4.15 million (\$5.67 million)-ORIENT (Oriental Research Infrastructure to European NeTworks) project will benefit all Sino-European research, including radio astronomy, sustainable development, meteorology and Grid computing, by helping to step up the flow of information between Europe and China. The ORIENT project is supported by the EU's 6th Research Framework Programme.

"ORIENT enables truly international research co-operation, by making geographic location almost irrelevant," commented Information Society media commissioner Viviane Reding. "Access to applications such as telemedicine, digital libraries and e-learning will help the general public, as well as the research community, to build academic and cultural links between Europe and China and an open exchange of opinions and expertise between Chinese and European researchers. And at the same time, ORIENT will bring together the world's best minds to tackle global challenges such as climate change and sustainable development."

ORIENT will connect Europe's GÉANT2, the world's most advanced international research and education network and the Chinese research networks CERNET and CSTNET on an overland route via Siberia. Scheduled to go live later in 2006 it will link over 200 Chinese universities and research institutions, at speeds of up to 2.5 Gbps. It will be coordinated by research networking organisation DANTE in Europe and the CERNET network in China.

The ORIENT launch follows Commissioner Reding's meeting with Xu Guanhua, Minister of Science and Technology of the People's Republic of China, in Beijing in January. At the meeting, both sides agreed that e-infrastructure (advanced networking and Grid technologies) and its applications would play a key role in economic and social development and acknowledged the high importance of bilateral cooperation. Commissioner Reding, during her visit in China, had emphasised the importance of cooperation among researchers and students for the development of open societies.

The project began on March 1 and will run for three years. Funding of the link will come from three sources: 50 percent of the project cost will be provided by CERNET (from the Chinese Ministries of Education, and Science and Technology respectively); 25 percent from the European Commission; and the final 25 percent contributed by Europe's National Research and Education Networks (NRENs).

A number of Sino-European research projects have already been established and are looking forward to use the ORIENT connection. EUChinaGrid will extend the European Grid infrastructure for e-Science to China, supporting the international extension of the European Research Area (ERA). The EXPReS radio-astronomy project will see European radio telescopes connected to partners in China.

ORIENT will provide a complementary service to TEIN2, the Asia-Pacific research network which went live in December 2005. TEIN2 links 10 countries, including China, at speeds of up to 622 Mbps, fostering regional collaboration. Each network will benefit from the connectivity provided by the other, increasing capacity and providing backup links in the event of failure.

In addition to DANTE and CERNET, the project is supported by several European NRENs, namely GARR (Italy), DFN-Verein (Germany), RENATER (France), UKERNA (UK), GRNET (Greece) and CESNET (Czech Republic).

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