

# Virtual tests are just as effective and much cheaper

Belarus, Russia and Moldova plan to unite their supercomputer networks

By Oksana Lesnovskaya

The joint project by our three countries is expected to be implemented as part of a new interstate targeted programme for innovative co-operation between CIS states. With our networks connected, scientists from our three countries will be able to team up for various joint sci-tech projects. "Supercomputers will allow us to set up joint virtual groups and implement joint scientific projects," explains Anatoly Krishtofik, a research officer with the United Institute of Informatics Problems at the National Academy of Sciences of Belarus.

Any member country will be able to use the supercomputing resources of its partners as necessary. This integration will open up new opportunities for industrial enterprises in our three countries, allowing components for machines and vehicles to be modelled, alongside pharmaceutical compounds, while processing and analysing geological survey data.

Demand for supercomputing services is rising among Belarusian companies, with mechani-

cal engineering flagships in the lead. Grodno Cardan Shafts Plant uses a supercomputer to model cardan drives for BelAZ vehicles and conduct virtual tests. As a result, material consumption is cut, while manufacturing durability is increased. Moreover, expensive real tests are supplemented with virtual, saving money. Minsk Motor Works models hydrodynamic processes in engines, to calculate engine performance parameters and exhaust emissions. These companies now have access to supercomputer technologies, via telecommunication infrastructure and special GRID integrated workplaces for designers.

Belarus' supercomputer GRID network comprises the United Institute of Informatics Problems at the National Academy of Sciences, the Joint Institute for Power and Nuclear Research — Sosny, the Belarusian State University and Grodno State University. Their resources are integrated into the European GRID structure, with Russia remaining Belarus' key partner in the area.

"It's particularly profitable for us to promote supercomputing



Belarusian enterprises already appreciate speed of supercomputers

co-operation within the Customs Union and the Single Economic Space," Mr. Krishtofik stresses. "Partnerships with other supercomputer manufacturers would take more effort and would be less

effective. We should keep in mind that the world's leading supercomputer manufacturers have long ago divided the traditional sales markets and are now aggressively penetrating new outlets."

## Ready for diverse collaboration

Development of trade-economic ties tops the agenda at talks between heads of Belarusian Consumer Co-operatives Union (Belkoopsoyuz) and Shanti Jayasekara — the Rector of the International University of Fundamental Studies (IUFS), the President of the Intergovernmental Higher Academic Council (IHAC) and the Head of Ceylon Company

Possibilities for opening a Ceylon trading house in Belarus have been discussed, alongside the organising of exhibitions and setting up of joint import substitution facilities (developing both new and existing sites). Belarus has been invited to create a Consumer Co-operation Department at the Belarusian Trade and Economic University, with assistance from the International University of Fundamental Studies. This would promote student exchanges between the Belarusian University and leading global higher educational establishments. The meeting was crowned by the signing of an agreement on intentions. According to Belkoopsoyuz Head, Sergey Sidko, the document should soon be filled with practical solutions.

## Synthetic rubies and emeralds compete against natural stones



Red emerald grown artificially by Belarusian scientists

By Anna Burmistrova

Chinese companies interested in Belarusian technologies for growing synthetic precious stones

Chinese companies are showing interest in the synthetic gem technologies of the Material Science Centre of Belarus' National

Academy of Sciences. At present, Belarusian scientists and Chinese businessmen are studying various co-operative schemes, with Belarus ready to share its technologies on beneficial terms. Partnership with Chinese companies would raise exports of Belarusian synthetic emeralds, promoting them on the Asian market.

"We hope that our talks will yield results," stresses the head of the Centre's superconductor physics laboratory, Vladimir Merkulov, adding that demand for Belarusian synthetic emeralds and rubies is ever growing domestically. The Centre can produce about 10,000 carats of gems annually, fully satisfying the demand of Belarusian jewellery makers and allowing exports to such countries as Latvia. Other export opportunities are being sought.

The Centre has been producing synthetic rubies and emeralds for several years now, with red emeralds being the latest 'miracle'. Synthetic gems are identical to those found naturally, having the same optical properties and transparency. Moreover, they have fewer defects. Natural emeralds are unique and rare, with limited deposits. According to estimates by foreign experts, deposits of natural emeralds will deplete faster than oil. With this in mind, an increasing number of foreign jewellers prefer synthetic gems.

## New prospects open on South African continent

By Olga Belova

Belarus and South Africa to perform joint innovative projects

Terms of co-operation between scientists from our two countries were recently discussed in Johannesburg, where Belarus had a booth at the South African International SAITEX Trade Exhibition. As part of the fair, numerous meetings with representatives of South African and neighbouring African companies were held, with around 50 resulting in concrete talks on possible co-operation, according to the Belarusian Institute for System Analysis and Information Support of the Scientific and Technical Sphere.

SAR businessmen were especially interested in Belarusian developments in medicine, metallurgy, material science, road construction, laser and nano-technologies. They also paid close attention to our technologies for material hardening, plasma and hydro-abrasive metal cutting, as well as equipment to control temperature and the content of metals. Methods of processing ores and non-metallic materials and of making cubic gravel in concrete manufacturing and road building were also of interest.

Co-operation between Belarus' National Academy of Sciences and the research centres of South Africa was agreed in the fields of information technologies, mechanical engineering, medicine, electronics and bio-technologies. Joint training of personnel with the highest scientific qualifications may be arranged, while Belarus received several proposals regarding the promotion of Belarusian scientific and technical products on the South African market.

## Vehicle loved in the North

Belarusian Automobile Works manufactures 2,000th 55-tonne heavy duty dump truck

The jubilee vehicle has been dispatched to the Belarusian company's traditional customer: Russia's Kuzbassrazrezugol Coal Company JSC.

The Belarusian Automobile Works produced its first 55-tonne truck fifteen years ago; by 2007, a thousand had been manufactured. High demand was seen, with the new vehicle filling the gap between trucks with a 30-42-tonne capacity and those with an 80-120-tonne capacity. It boasts many competitive advantages: a diesel engine, electronic controls, high capacity and fuel economy. In addition, the vehicle is suitable for various climatic zones, including the cold North.

The BelAZ 55-tonne heavy duty dump truck is successfully operational at ore mining enterprises across the CIS and beyond, transporting thousands of tonnes of ore and pit coal. The trucks are in great demand, with the company steadily receiving orders from ore mining enterprises.