

Microscopes distinguish nano-levels

Domestically manufactured novelty to boast lower price than foreign analogues

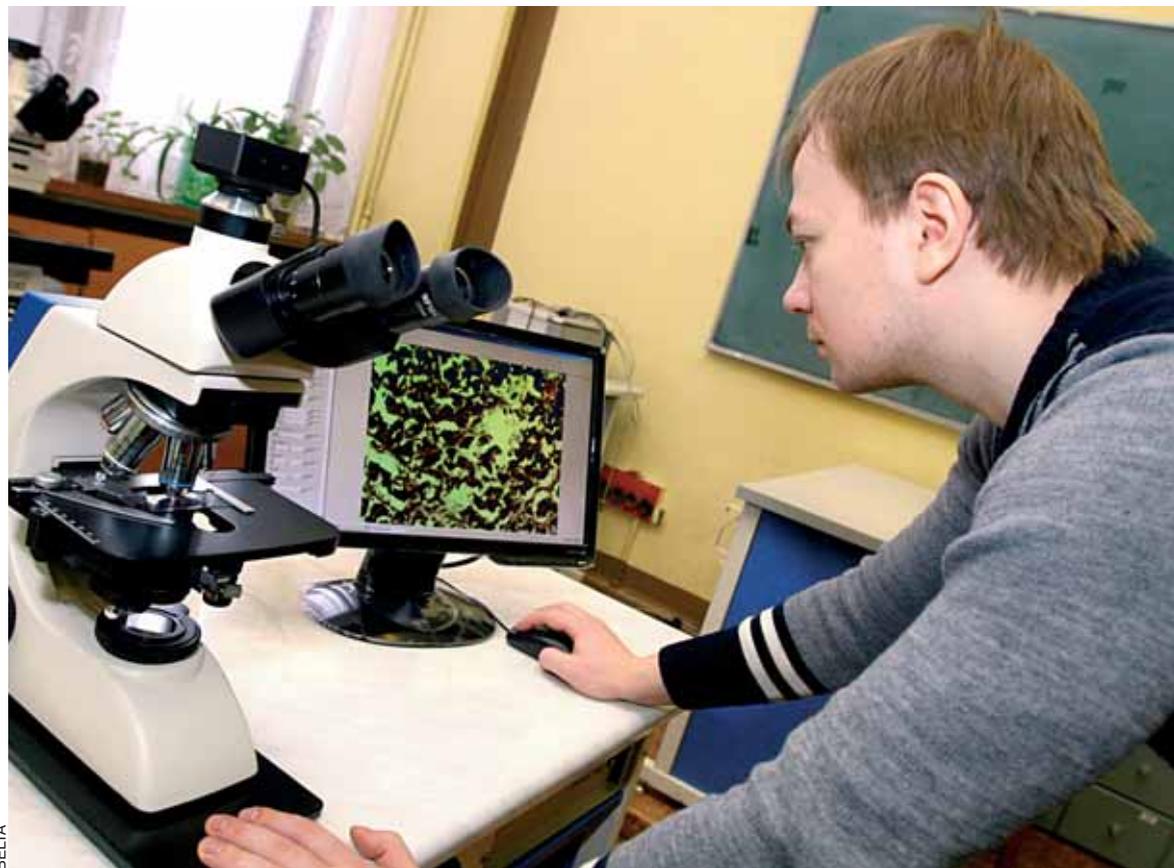
By Denis Tupolev

In microelectronics, anything above nano-level (0.13-0.09 microns) is obsolete and uncompetitive. Integral JSC understands this well and has already taken its first steps in nano-technology.

In traditional optical devices, it's impossible to distinguish details smaller than 0.35 microns. With this in mind, manufacturers of microelectronics are delighted that the State Scientific Production Association of Precise Mechanical Engineering — Planar — has successfully tested a unique scanning probe microscope. Developed by the Design Bureau of Precise Electronic Mechanical Engineering jointly with scientists from the National Academy of Sciences, the device is unique throughout

the post-Soviet space. So far, only three countries have produced this high-tech and extremely expensive equipment: the USA, Japan and Germany. These are now joined by Belarus, which aims for its own niche on the global market. Importantly, domestically produced microscopes are to be priced several times cheaper than their foreign rivals. Belarus' own market is also receiving attention, with the first microscope made in Belarus for Integral's own use.

The National Academy of Sciences' chief academic secretary, Sergey Chizhik, is the scientific head of the development. He explains that the principle of atomic force microscopy works as follows: a special console with a very thin needle is placed close to the object of inter-atomic force action. A laser beam probe reacts to



Unique scanning probe microscope successfully passes all necessary tests

the smallest movements, unseen even by the most powerful optical equipment, and this increased volumetric image is recreated on a computer monitor.

If a probe microscope can tackle this task, then do we need ordinary microscope lenses? In fact, we'd fail to find the observation site without one; an operator or an automatic system initially

defines the object of study, then scanning by probe begins. Foreign devices lack such a combination of functions — a great advantage of the Belarusian innovation. Moreover, our device can operate with a silicon slab (of 200mm diameter), on which 10,000 micro-circuits can be placed.

The Gomel-based Institute of

Mechanics of Metal-Polymeric Systems (of Belarus' National Academy of Sciences) has greatly contributed to the project, as has Gomel's Microtestmachines (developing laboratory pro-samples for the atomic force device, methods of use and software). Both have helped create and improve the microscope, which was made in Minsk.

Belavia to open Suomi's capital



Belavia expands its route network

By Olga Belova

From June 1st, 2011, National Airline Belavia to launch Minsk-Helsinki-Minsk regular flights

Flights between Belarus and Finland are to run three times a week: on Monday, Wednesday and Sunday. Tickets are already available from air transport agencies and from Belavia's website, with fares starting

at 199 Euros in both directions.

The timetable is designed to connect with Belavia's flights to Yerevan, Moscow and Tbilisi, attracting transit via Minsk and onward via Helsinki to the rest of Scandinavia, alongside South-Eastern Asia and North America.

The new route for Belavia's 2011 summer season will cover 37 cities in 22 Eurasian countries.

Passengers to use e-schedule

By Oksana Shikut

Electronic tables to appear at public transport stops in Belarusian capital this year

Minsktrans' chief engineer, Boris Demidovich, explains that the tables will indicate the time of arrival of the next bus, trolley bus or tram, installed initially at the busiest stops, on central streets and avenues. The equip-

ment is being supplied by the Minsk Electromechanical Plant, with the first sample arriving by late February.

The instalment of e-tables on Minsk's streets is an important part of the new automated system for the city's public transport. This major project envisages equipping drivers' cabins (of buses, trolley buses and trams) with GPS navigation terminals, allow-

ing their location and route to be tracked, in real time. Additionally, drivers will be able to see the times of other vehicles, running ahead or behind schedule. About 1,700 GPS systems have already been installed and, by late March, all city transport will have them.

In April, Minsktrans will begin installing navigation devices on inter-city and suburban transport.

Ball-shaped crowns to surprise

By Anastasia Yanushevskaya

Garden boasting trees of unusual shapes to appear in Minsk

At present, a range of garden trees is being developed, with their crowns likely to be spherical, drooping or creeping, via grafting, rather than cutting. The garden will boast weeping elms, ball-shaped larches, hawthorns with spherical double flowers and ball-

shaped maples, among others.

The project is being fulfilled by the Central Botanical Garden and Minskzelenstroy enterprise, which is soon to determine the site for planting trees. "The garden will occupy approximately one hectare and needs to be on an existing, prominent green site," notes Igor Garanovich, who heads the woody plant introduction laboratory at the National Academy of Sciences' Central Botanical Garden. He

notes that 1.5-2m saplings will be planted in late April.

In future, other unusual gardens are to be created in the Belarusian capital, including those with lilacs and a continuously blooming garden filled with forsythia, shrubby cinquefoil, lilac, jasmine and other shrubs, ensuring flowering from April to September. An evergreen garden of cedars, junipers and cypresses is also planned.

University ranked among world's top by Webometrics



Belarusian universities seeing growing rankings

Belarusian State University ranked among 1,500 top global universities, according to Webometrics

The ranking includes 36 Belarusian universities, alongside the BSU, which occupies 1,474th place. The country's top three universities (according to Webometrics) are completed by Grodno's State University (2,441st) and the Belarusian State University of Informatics and Radioelectronics (2,994th).

The top ten Belarusian universities also include the Belarusian State Pedagogical University (4,000th), the Belarusian Medical Academy of Post-Graduate Education (4,503rd), the Belarusian State Medical University

(5,662nd), Gomel's State University (5,692nd), the Academy of Post-Graduate Education (5,845th), Minsk's Institute of Management (6,028th) and Brest's State Technical University (6,299th). The Belarusian State Economic University is ranked 11th among Belarusian universities and 6,458th in the world rankings.

Webometrics is considered to be an authority in such rankings worldwide, compiled by the Cybermetrics Lab research group at the Spanish Education and Science Ministry. Webometrics studies university representation on the Internet, rather than educational activities as a whole. Around 13,000 educational institutions are usually analysed.