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# Skolkovo's MIT Seeks to Stop Brain Drain

By Justin Varilek

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CAMBRIDGE, Massachusetts — "I'm probably not going to move back for a couple of decades," said Yekaterina Paramonova, a third-year undergraduate majoring in nuclear science and engineering at the Massachusetts Institute of Technology, echoing the sentiment of many Russians who have tasted life outside the motherland.

"In the United States, there are secure job opportunities, and you know the process to obtain a job isn't really corrupt, but in Russia you need to have connections," she said.

Paramonova, an aspiring young scientist whose parents immigrated to the United States four months before she was born, was one of many representatives of the Russian diaspora gathered last week in Cambridge, Massachusetts, for the founding conference of the Skolkovo Institute of Science and Technology, or SkTech — a joint venture of MIT and President Dmitry Medvedev's Skolkovo Innovation Center announced in October.

The new institute will be situated at the Skolkovo site in the Moscow suburbs, its core language will be English, and it will be focused on entrepreneurship and bringing research to market.

The Skolkovo Innovation Center is a government initiative striving to concentrate industry, academia and investors in a single location to form a Silicon Valley on the outskirts of the country's capital.

The new university is intended for Russian graduate students so they can attend a world-class research-based institution while staying in the Russian Federation, said SkTech president Edward Crawley, an MIT professor who has served as chairman of the NASA technology and commercialization advisory committee.

The brain drain has had a major impact on the nation's economy and educational system. Each year, 15 percent of graduates leave the country, and since the fall of the Soviet Union, 800 institutes have closed their doors. In all, about 800,000 scientists have emigrated from Russia, said Almaz Capital partner Sergei Beloussov during a presentation at the conference.

Rutgers University professor of molecular biology Konstantin Severinov bucked the trend and returned to head a lab at the Russian Academy of Sciences Institute of Molecular Genetics in Moscow in 2005. Since then, he has become one of four faculty fellows for SkTech. He witnessed 40 talented Russian students passing through his Rutgers' lab, but only two returned home — a tendency he hopes to reverse.

"We want to create the opportunity for those who have left to come back," MIT's Crawley declared at the conference, in concert with Severinov's aspirations.

The drain has reached such a scale that president Crawley, an American, was the only representative of any Russian academic institution at the World Economic Forum in Davos, Switzerland, at the end of January. Presidents of about 20 of the world's top universities attended the event, including Cambridge, Columbia University, Harvard, MIT, National University of Singapore, Oxford, Tsinghua University and University of Zurich.

### SkTech: Russia's Response

SkTech is expected to open the doors of its $1 billion campus, designed by Beijing Olympic stadium architects Herzog and de Meuron, in 2014. By the end of the decade, it aspires to reach the scale of CalTech, with 200 faculty, 300 post doctorates and about 1,200 graduate students.

All of the faculty and student body will be engaged in research to solve problems in five strategic scientific areas defined by the Russian government: biomedical, nuclear, space, information and energy science.

Within the framework of these five fields, about 15 research centers — with budgets of $6 million to $12 million each — will form an integral part of SkTech. Each center will combine faculty and students of a Russian university with those of a non-Russian university and SkTech to collaborate on research projects, which will "solve the problems of the 21st

century."

SkTech will strive to skip the evolutionary process that MIT, Harvard and Cambridge underwent to become economic engines of growth, said Crawley, pointing to the benefits of being surrounded by about 200 resident companies of Skolkovo, including IBM and SAP.

Accordingly, one of its defining and novel features is the Center for Entrepreneurship and Innovation, or CEI. This organization will provide two main functions: entrepreneurship research and education as well as assistance in commercializing research results.

The center will offer grants — each worth up to 3 million rubles ($100,000) per year — and mentoring to research centers and faculty so their projects reach the market. It will also manage all bureaucratic tasks: patenting inventions, managing conflicts of interest and acting as liaisons to industry.

## A Long Way to Go

However, since ground is not expected to be broken until late this spring, the only presence SkTech has so far in Skolkovo is administrative offices within the Skolkovo School of Management, a separate institution. Much work is required before the aforementioned facilities and programs are up and running.

"The procedure, everything is being created as we speak," Severinov said.

To navigate the unmarked territory, the SkTech founders are organizing pilot programs and expect a continuous ramping-up process.

Starting in August 2012, the first 20 students will participate in a three- to four-week "boot camp," SkTech special projects manager Lyuba Semirog said. The program will focus on courses in entrepreneurship and innovation as well as engineering.

Following that, the students will pass through a yearlong pilot program at MIT or potentially Stanford, Imperial College London or ETH Zurich — with all expenses paid for by SkTech.

Seeking to be financially independent, Crawley said the first development session for the endowment has already taken place, and they are planning on raising $1 billion with a long-term goal of $2 billion. The endowment, he said, should, within 10 to 20 years, be able to pay for 20 percent to 30 percent of all the university's costs.

The Skolkovo Foundation — the governing body funded from federal coffers and tasked with developing conditions favorable for innovation — foots the bill for all of SkTech's operating expenses and the creation of the research centers, said SkTech vice president for administration and development Alexei Sitnikov. However, in time Crawley foresees research projects contributing major sources of capital, as multinational corporations, international grants and private investors fund projects.

## Dispersing Fears

Undergrad Paramonova told The Moscow Times that she would like to attend SkTech for graduate studies, especially since the education was free, but the uncertainty of how

the master's degree would be accepted by international institutions and businesses caused her to focus on universities in France.

To attract students, SkTech is providing three years of free education. During the first year, students study abroad at a world-class international institution before returning to SkTech for the final two years.

Franz Hover, a professor of mechanical engineering at MIT attending the conference to learn more about the research proposal process, said his greatest concern was residency. He had already worked abroad in Singapore, and the experience had been very difficult for his family and career.

Severinov, however, dismissed concerns that it will be difficult to attract professors and researchers. "If the price is right, there will be no problem attracting Russian professors," he said.

He pointed out that there is currently a large undersupply of funding in the United States and that many labs are closing. Most research grants are $250,000 per year for four years, he said, whereas SkTech would be able to provide twice that amount.

SkTech is also focusing on attracting younger professors, Severinov said.

Each junior faculty member will spend an all-expenses-paid year doing research under a leading senior faculty mentor at another institution — at the moment MIT. However, agreements are being made with other institutions, Crawley said. After the first year, the professor will return to SkTech, but the mentoring relationship will continue to be cultivated — a cost footed by SkTech.

Stanislav Emelianov, a professor at the University of Texas in Austin who emigrated to the United States from Russia 20 years ago, visited the conference to evaluate the potential SkTech may have as a collaborative satellite university for his institution.

His main concern for the research centers was whether all universities would be given "a fair shake." He wanted to see more transparency in the research proposal selection process — that politics would be kept out of it.

I want to be sure the distribution of money doesn't just turn into some "money laundering" scheme, he said.

"Look, I'm leaving MIT to go and create this university," Crawley said in response to questions of whether corruption could seep into the process for funding allocation. "I'm not going to put up with anything. If I find something like that, I'll stop it and if I can't stop it, I'll leave. So if you see me leave, ask why."

### The Future

Not completely convinced, but further reassured, Ruslan Valiyev, head of nanotechnologies at Ufa State Aviation Technical University, based in Russia's Bashkortostan republic, said he had arrived with 10 percent confidence in the potential of SkTech, but after the two days, he was nearing 40 percent.

MIT professor of health sciences Leonid Mirny, an emigre, and bioengineering professor Mikhail Gelfand at Moscow State University, are ready to jointly apply for a research project in clinical and functional genetics, which would bring their respective universities together in a collaborative project at SkTech. Mirny expects strong competition for the funding, predicting possibly 20 applications in their field.

Crawley, however, doesn't gauge success by the number of applicants the university receives or how confident professors are in SkTech's potential.

"The real measure of success," he said, "is when people start wanting to come to Skolkovo to work. When the first graduate student applies to Skolkovo and MIT and gets in to both places and goes to Skolkovo — that day I will smile all day."

After the conference, Paramonova was still convinced that she would most likely do her graduate studies in Western Europe next year. But she said she foresees getting a second degree at SkTech and joining the battle to stop the brain drain.

"I'm going to try to get everything I can," she said, "and then go back [to Russia] and try to change something."

n  A former British minister for Europe has urged the British government to attach "health and safety" warnings to promotional material that encourages businesses to invest in Russia, the Telegraph reported.

Denis MacShane, Labor MP for Rotherham, has written to Trade Minister Lord Green protesting a conference this week in London, which is sponsored by U.K. Trade & Investment, that will promote Skolkovo — billed as Russia's Silicon Valley.

Citing the damage caused to companies by "corrupt officials in Russia," he wrote: "It seems irresponsible for British companies to be putting themselves in harm's way without full disclosure about the tragedies that could befall them in Russia."

In his letter, MacShane drew attention to the case of Hermitage Capital, a hedge fund whose Russian lawyer Sergei Magnitsky died in jail on allegedly trumped-up charges after uncovering an alleged $230 million fraud by police and tax officials.

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