

INVESTMENT OPPORTUNITIES

Nanotechnology in the Czech Republic



Nanotechnology in the CR

In November last year, CzechInvest, investment and business development agency, came to the decision that it would expand its focus on supporting foreign investment in the Czech Republic by bringing another key sector into the fold. As a result, nanotechnology is now one of the agency's priority fields, along with engineering, the automotive and aviation industries, electronics, IT, life sciences and business support services.

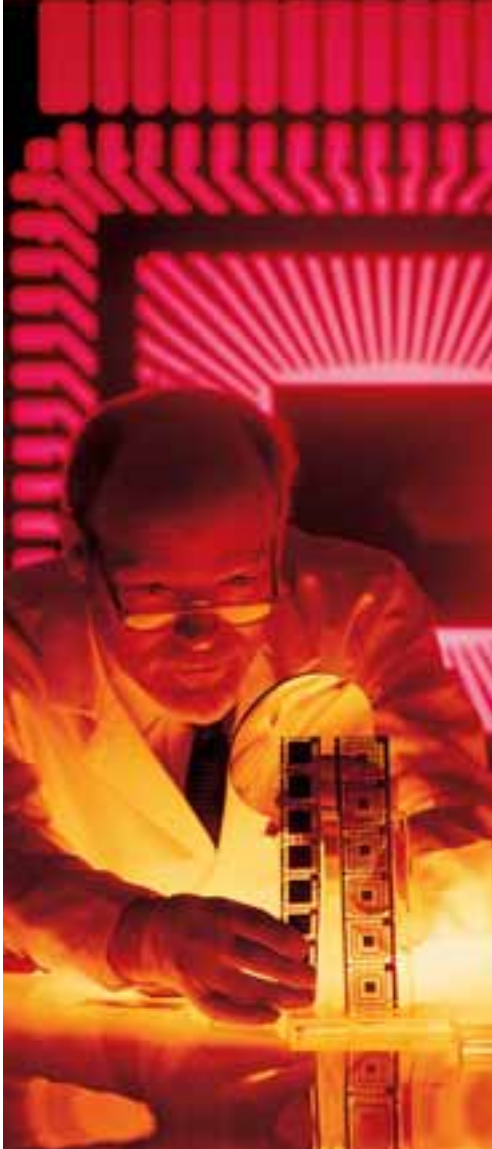
The term **nanotechnology** covers a broad range of fields and, unlike other segments, it can be defined only very generally. Nevertheless, most experts agree with the opinion that nanotechnology as a sector consists in an interdisciplinary field that includes the study and manipulation of phenomena and materials less than 100 nm in size on the metric scale. To illustrate just how tiny that is, a human hair is 80,000 nm thick. Nanotechnology already plays or will play an important role in many major sectors, such as mechanical engineering, electronics, biotechnology, medicine, power generation, and environmental protection, to name just a few. A vital source of information is found in Nanotechnology 2005 study and the related website at www.nanotechnologie.cz. This publication includes information on publicly funded research and development and identifies academic laboratories, companies and other private-sector entities involved in the sector.



Strong Support for Nanotechnology

There are several institutions contributing to the development of research and practical application of nanotechnologies in the Czech Republic. The Academy of Sciences administrates the **Nanotechnology for Society** programme, which was approved by the government for the period 2006-2012. According to available information, 29 projects valued at approximately EUR 43 million (EUR 1 = CZK 25) had been registered in the programme by the end of 2007. The Academy of Sciences concurrently supports nanotechnology activities under the **Information Society** programme.

The Grant Agency of the Czech Republic is another significant provider of support. This agency focuses primarily on supporting basic research and by the end of 2007 had registered 51 "nano" projects worth EUR 5.7 million. Naturally, the Ministry of Industry and Trade also contributes to the development of nanotechnology through the **Progress** and **Permanent Prosperity** programmes, in which 27 projects worth a total of EUR 10.5 million had been registered as of the end of 2007. The Ministry of Education, Youth and Sport supports nanotechnology-related activities within the *Research Centres*, *Basic-Research Centres* and *Information Infrastructure* for R&D programmes, through which support had been provided to 34 projects worth EUR 12.4 million by the end of last year.



Promising Players on the Czech Market



In mapping the situation in the Czech Republic, it was CzechInvest's aim to acquire an overview of public and private entities operating in the nanotechnology sector. This resulted in the compilation of a list containing 17 institutes of the Academy of Sciences, 13 universities, four departmental contributory organisations, nine private research laboratories, six large manufacturing companies, 20 small and medium-sized enterprises, several trading companies, one specialist firm and seven other activities. The overview was used as a basis for a more detailed survey of the nanotechnology sector in the Czech Republic, the purpose of which was to identify research institutions and private organisations having above-average potential in the sector along with an interest in establishing and expanding international cooperation. Finally, the information thus gathered was evaluated and CzechInvest, with assistance from its foreign offices, is now seeking out suitable partners for cooperation with local entities.

CzechInvest is currently communicating intensively with several Czech nanotechnology firms that have achieved not only better-than-average results, but are also capable of competing on the global market.

Location



Elmarco

170 employees, www.elmarco.com

One of the most famous nanotechnology Czech companies is Elmarco – a world leader in the nanofiber industry, which is the first and still the only company in the world that offers machines for industrial production of nanofibers. Industrial lines and laboratory units – so called Nanospiders produce nanofibers using the electrospinning technology. The Nanospider technology has already been improved and modified for three types of polymers – organic, inorganic, and melts. The technology is very flexible therefore the parameters of the produced nanofibers can be changed very easily. In 2009 Elmarco plans to finalize the new R&D centre in the city of Liberec, which will emphasize further development in the area of nanomaterials and the production of prototypes. Furthermore Elmarco plans to launch new offices in the USA and Japan.

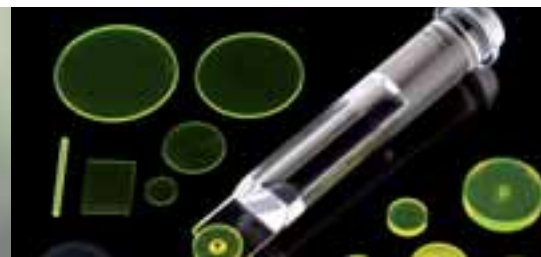
Location



Crytur

60 employees, www.crytur.cz

Another of the few well-known Czech companies in this field is Crytur, formerly the state-owned enterprise Monokrystaly. Headquartered in Turnov, Crytur employs more nearly 60 people and has tripled its turnover to EUR 2.5 million in the past year. Crytur is a significant producer and supplier of detectors and detection units for scanning electron microscopes and monocrystalline materials for laser applications and dielectric surfaces for high-quality optics. The company's management has expressed interest in forming a joint venture with a foreign partner in an area relating to Crytur's production, such as diode systems for pumping lasers, assembly of laser systems, night-vision systems, etc.



Promising Players on the Czech Market

Location



Optaglio

45 employees, www.optaglio.cz

A further successful Czech firm in the area of nanotechnology is Optaglio. Based in Rez, near Prague, this company possesses a unique technology – ultra-precise electron lithography, which is primarily used to produce holograms. Optaglio delivers holographic stamps and labels to more than 60 countries, primarily in connection with government orders. The company is currently looking for alternative applications for its electron lithography technology in the fields of photovoltaics, printed electronics and production of diffraction elements for industrial uses.

Location



Generi Biotech

26 employees, www.generi-biotech.com

Generi Biotech of Hradec Králové is a promising bio-nanotechnology firm that was established as a classic spin-off through the separation of the molecular-genetic laboratory from the local university hospital. Within the scope of its commercial activities, the company produces special diagnostic kits for exotic pathogens and paternity-test kits. In the area of research, Generi Biotech is dedicated to the detection of various pathogens, gene expression and problems related to persistent wounds. From the perspective of long-term research, the company is focusing its attention on gene therapy and the use of nanostructures for targeted transport of drugs. A special project involves testing the electrical properties of DNA, particularly conductivity, with the aim of creating an instrument for testing damaged DNA without using blood tests. The company does not rule out cooperation with a foreign partner for any of its activities.

Location



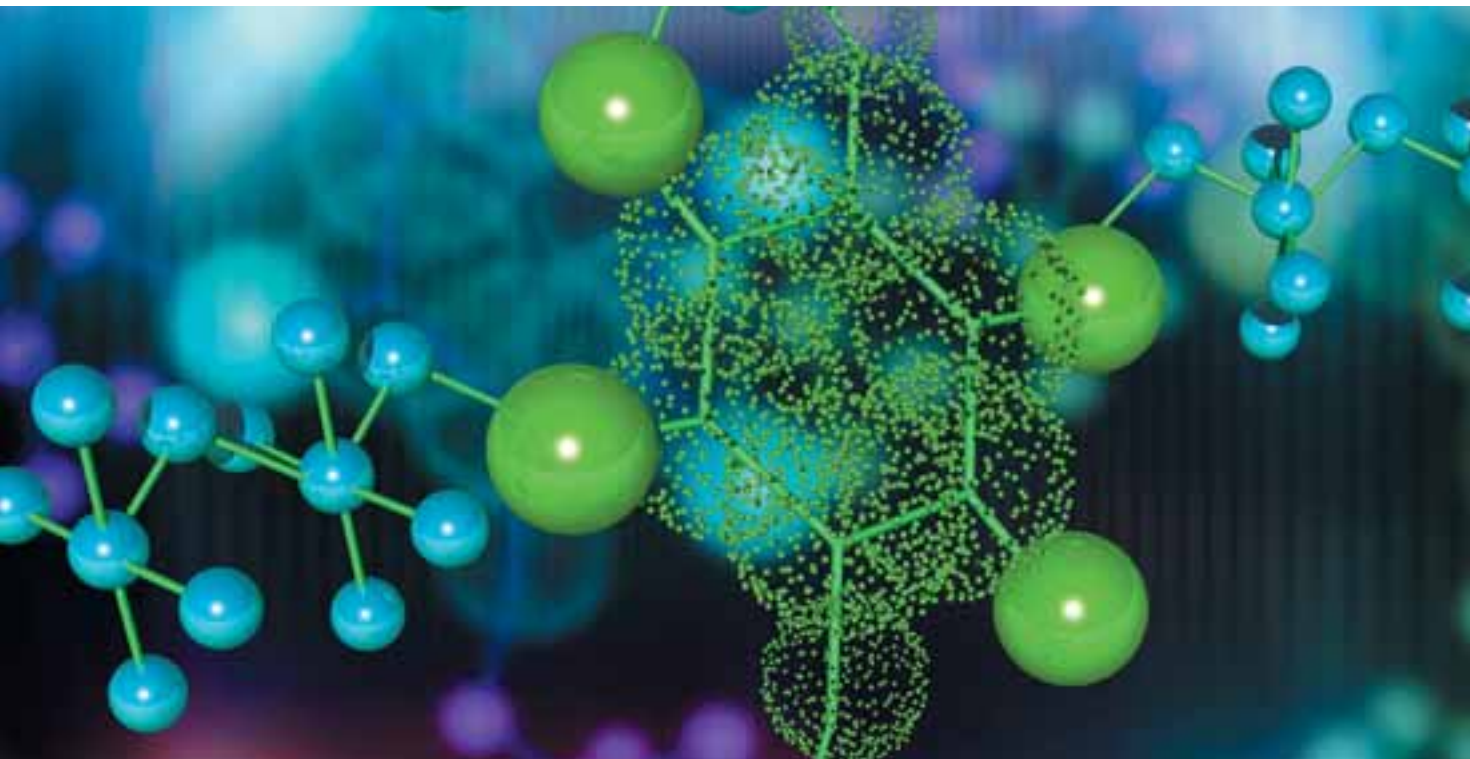
Limtek

4 employees, www.limteklaser.com

LIMTEK is a small yet promising firm that originated as the state-owned enterprise Metro Blansko. The company produces laser interferometers for applications in engineering, microelectronics, meteorological laboratories and universities. LIMTEK has exported its products to various countries in Europe and elsewhere for over 20 years without a single warranty claim. As LIMTEK consists of only a four-member team, it would gladly welcome a strategic partner that would acquire part of the company and contribute to the production of laser interferometers.

CzechInvest plans to continue seeking out nanotechnology entities that are suitable for international cooperation. In future, the agency wants to focus more of its attention on projects in the academic sphere.





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