

**THREE INTERNATIONAL TOP RESEARCHERS WILL PROVIDE THEIR EXPERTISE TO STRENGTHEN THE RESEARCH WORK IN THE AREAS OF NEW MATERIALS, MICRO AND NANOSCIENCES AS WELL AS PHOTONICS AND OPTICS AT TKK IN THE BEGINNING OF THE YEAR 2007**

Two units of the Helsinki University of Technology (TKK), Center for New Materials and Micronova, will get three top researchers from the Finland Distinguished Professor Programme (FiDiPro) which is funded by the Academy of Finland and the Finnish Funding Agency for Technology and Innovations (Tekes). The research programmes will bring three top researchers to strengthen Finnish research of micro and nanosciences at TKK from the beginning of the year 2007.

The goal of the FiDiPro is to raise the level of scientific and technological knowledge and know-how in Finland and to add a more international element to the Finnish research system. Universities and research institutes named close to a hundred researchers to be funded within the programme. In the end, the Academy of Finland and Tekes decided to fund 24 research projects with 17.5 million euros.

**Photonic Integrated Circuits by Heterogeneous Integration for Telecommunication and Sensor Applications**

Professor Seppo Honkanen from the University of Arizona will lead a project called Photonic Integrated Circuits by Heterogeneous Integration for Telecommunication and Sensor Applications. The main goal of this project is to build a world-class research program on Photonic Integrated Circuits at Micronova. In particular, novel schemes will be developed to integrate photonic components based on different material systems. It is expected that this project will result in a new class of integrated photonic "chips", in which the advantages of different material systems will complement each other. These devices will have potential for greatly improved performance and reduced cost.

– Honkanen will improve the already strong profile of Micronova as a leading research center on photonics in Finland, says the Head of the new TKK Micro and Nanotechnology unit, Professor Harri Lipsanen who introduced this project to FiDiPro.

**Role of optics and photonics in the developments of micro and nanoscale equipments and technology**

Professor Ari T. Friberg, Royal Institute of Technology, Sweden, will strengthen the research of optical physics and photonics at Micronova. He is reviewed as being among the one per cent of top scientists in the world in the fields of optics and photonics. He is an internationally highly recognised scholar with an extensive and varied list of publications.

The project's main research field is optical physics. Advancements in optics and photonics are key drivers for technological innovations of the 21st century. In particular optical phenomena, components and devices in micro- and nano-scale dimensions will play an ever more important role. One of the goals is to make Finland stand as one of the leading centres of micro- and nano-optics research in Northern Europe. The research project is run jointly by Helsinki University of Technology and the University of Joensuu.

– It is very important to have one of the world's top scientist in optic research, Professor Friberg, back in his home country. And that is not only meaningful to TKK but to the research of optics and photonics as a whole in Finland, says the Head of Optics and Molecular Materials Laboratory, Professor Matti Kaivola who introduced the project to FiDiPro.

### **Nanometre-scale processing and synthesis**

Professor Antti-Pekka Jauho from the Technical University of Denmark will come to strengthen research in the field of computational nanotechnology. The project is concerned to study nanometre-scale processing and synthesis that open new possibilities for electronics components and devices. New, functional materials can be applied not only as more efficient and versatile processing and memory circuits but also as various kinds of sensors and actuators.

– Professor Jauho brings a very important contribution to the research and teaching of nanosciences at TKK. Professor Jauho is the leading scientist in the world in the field of quantum transport theory, says Academy Professor Risto Nieminen from the Laboratory of Physics at TKK.

FiDiPro is also geared towards supporting research-driven profiling of universities and research institutes and creating new kind of international cooperation between university-based research and business companies.

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Micronova is the leading research centre for micro and nanotechnology in Finland. It is part of Otaniemi Science Park, which is the largest technology hub in the Nordic countries. Micronova is jointly run by VTT, Technical Research Centre in Finland and Helsinki University of Technology, TKK. Over 300 researchers from VTT, TKK and several companies work at Micronova. Most of the R&D work is done in close cooperation with partners at universities, research institutes and companies in and outside Finland. Micronova offers the largest clean room facilities in the Nordic countries.