FIDIPRO FINLAND DISTINGUISHED PROFESSOR PROGRAMME

Teaming up with the best

PETTERI KIVIMÄKI

"We have common interests, available resources and synergy."

FiDiPro Professor ***Jacek Dobaczewski***

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The FiDiPro funding programme enables distinguished researchers, both foreign and expatriates to work and team up with the 'best of the best' in Finnish academic research, creating long-term synergy in science and technology.

A fresh approach to international scientific cooperation

Led and financed by the Academy of Finland and Tekes – the Finnish Funding Agency for Technology and Innovation – FiDiPro raises scientific and technological excellence by establishing long-term international collaboration among outstanding researchers around the world.

The initial round of FiDiPro provided funding for 24 research projects with a total budget of 17.5 million euros. The first professors began their work in Finland at the beginning of 2007.

An excellent arena for research and innovation

At present, Finland invests more than 3.4 per cent of GDP in research and development, making it one of the most research-intensive countries in the world.

Networking and teamwork are valuable tools in Finland. R&D programmes run by the main public funding bodies create meaningful tie-ups between companies, universities and research institutes. The new Strategic Centres for Science, Technology and Innovation to be established will also set up a more efficient framework for collaboration.

The first strategic centres will be launched in the fields of energy and the environment, metal products and mechanical engineering, the forest cluster, health and well-being, and information and communication industry and services. These are relevant topics for FiDiPro research projects as well.

Who are eligible for FiDiPro?

Funding is awarded to projects recruiting highly merited international researchers with strong experience in researcher training and who are able to commit to long-term cooperation (2–5 years).

How does FiDiPro work?

Tekes and the Academy of Finland open calls on a regular basis. Finnish universities and research institutes may propose FiDiPro professors from all disciplines.

Finnish universities and research institutes outline their project plan and explain the collaboration between the professor and the Finnish research teams and companies. Applicants should also define how the cooperation strengthens research excellence in their field. The research projects need to have strategic importance to the host universities and research institutes.

Evaluation

A panel of experts evaluates the competence of the proposed candidates and the excellence of the project proposals. The Academy of Finland emphasises researcher training in its evaluation, while Tekes requires active cooperation with companies.

Funding

FiDiPro offers competitive grants covering salary and travel expenses, research costs and related expenses of accompanying family members. FiDiPro professors may bring along a key member or key members of their own research team, whose expenses may also be partially covered.

www.fidipro.fi

Interviews with FiDiPro professors shed light on the experiences of the distinguished researchers and their thoughts during their FiDiPro stint in Finland.

MARKUS SOMMERS

Forest biorefinery expert develops eco-friendly innovations

Collaboration grows from complementing know-how

Green forests, good bike paths and a steamy sauna could be Professor **Adriaan van Heiningen**'s reasons to return to Finland after previous consulting stints. The Dutch-born Canadian living in Espoo is reminded of Northern Canada, where he goes canoeing every year.

He works on a five-year project dubbed "Innovative Forest Products Biorefinery" at the Forest Products Technology Department of Helsinki University of Technology and the Department of Chemical Engineering of the University of Maine (USA).

"Finland serves as a headquarter for some of the world's most successful pulp and paper companies, which are now looking into fitting eco-friendly biorefineries in their business strategy," notes van Heiningen, whose expertise in chemical engineering, pulp and paper technology, and energy production brings a unique set of skills complementing Finnish know-how.

One of the project's goals is to convert existing kraft pulp mills into integrated forest product biorefineries. By extracting hemicelluloses from wood chips before pulping, and converting this new feed stream of sugars into chemicals and polymers, yields are integrated into new higher-value products.

While the US seeks to make cellulosic ethanol competitive with petrol by 2012, Finnish companies such as Stora Enso and Neste Oil adapt by building a demonstration plant to convert woody biomass into crude biodiesel.

Wireless communication from the top of the world

Synergy between industry and academia

Telecom giant Nokia brought **Behnaam Aazhang** from Switzerland to Finland more than ten years ago. “The achievements in mobile communications are direct results of the great synergy between Finnish industry and academia,” he says.

Today, the Rice University professor works at the Centre for Wireless Communications (CWC) at the University of Oulu with a team of experts on broadband wireless access.

“Flexible Wireless Communication Systems” is a five-year research project on cognitive radio technologies, effectively using frequency spectrum and reconfigurable software defined radio (SDR) platforms.

Only 160 kilometres south of the Arctic Circle, CWC’s pioneering research on the Wireless Hospital and its dynamic Embedded Communications Research Lab have cemented its reputation as an international hi-tech hub.

“Expectations of high data rates and increased battery life put tremendous pressure on all aspects of wireless system design – cooperative communication can rise to this challenge,” Aazhang says.

PAULIINA KUSTONEN

Leading nuclear theorist applauds Finnish research

Opportunities to meet highly trained people and a good team

“Finnish basic research on nuclear physics is focused,” observes **Jacek Dobaczewski**, Professor at the Institute of Theoretical Physics of Warsaw University. “A small team of Finns is competitive, well-trained and qualified to compete with large research centres.”

In 2007–2011, Dobaczewski leads a new theoretical research project, “Nuclear Structure by the Energy Density Functional Theory”. The aim is to explain the global properties of nuclei with special emphasis on describing nuclei far from stability.

Based at the University of Jyväskylä, Dobaczewski works with international centres of nuclear physics research and conducts seminars in nanoscience and accelerator laboratories in Finland.

“Questions relating to nuclear science, future energy needs and proper disposal of nuclear waste are common concerns in many countries,” Dobaczewski says. “In the future, countries can avoid dumping waste in water pools and produce new generations of harmless nuclear reactors.”

Dobaczewski praises the absolute transparency and absence of bureaucracy in Finland. One less thing to worry about leaves him plenty of time to enjoy downhill skiing and the ‘marvellous’ philharmonic orchestra.

Biotech breakthroughs in bustling cultural capital

Innovation is the heart of science

The weather in Turku is similar to that of Lund, notes Descartes Prize awardee, Dr **Rikard Holmdahl**. “Since both cities are located in the same latitude, it feels like coming home,” he says. This is convenient for a Swede who regularly travels to Turku, Finland’s candidate for European Culture Capital in 2011.

The city also hosts one of the most advanced biotechnology research clusters in Europe. Thanks to excellent resources conducive to research “I’d still come here even if it’s at the North Pole,” Holmdahl says with a smile.

Since January 2007, his research project on chronic inflammatory and autoimmune diseases seeks advanced understanding of common yet complex ailments that have no treatments to prevent or reverse the disease course. The research focuses on rheumatoid arthritis, multiple sclerosis and systemic lupus erythematosus. Holmdahl’s expertise in rheumatoid arthritis and multiple sclerosis is strengthened in collaboration with respected Finnish scientists

“Commercialisation of scientific discoveries in the last decade has been possible through increased collaboration and funding in Europe”, Holmdahl says. “An entrepreneurial drive and venture capital investments are equally important to scientists.”

VESA-MATTI VÄÄRÄ

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Fast facts about Finland

The European Innovation Scoreboard 2006 puts Finland in the top three in terms of public R&D expenditure, business R&D expenditure, tertiary education, innovative SME cooperation, European Patent Office patents and triad patents.

Finnish research teams actively participate in global R&D networks and have been successful, for example, in EU Research Framework Programmes.

Relative to population and GDP, Finland is one of the world's biggest science publishers, ahead of such traditionally strong countries in scientific research as the UK and Germany.

Finnish research personnel represent the highest percentage of the employed labour force in the OECD countries. The number of doctorates has nearly doubled in the last ten years.

There are 20 universities and 21 public research institutes in Finland. The national university network provides a study place for almost one-third of the age group.

For more information on FiDiPro | www.fidipro.fi
Academy of Finland | www.aka.fi/eng
Tekes – the Finnish Funding Agency for Technology and Innovation | www.tekes.fi/eng
Researcher's Mobility Portal Finland | www.aka.fi/eracareers

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