Aalto University

Finnish-Russian Innovation Alliance on Nanotechnology Partner Day 15th of November - St.Petersburg Dr. Tapio Mäenpää - Technology Transfer Manager - ACE

- Formed 2010 by merging 1+1+1 Universities
- 2nd largest with 20 000 students
- 3 Campuses
- 6 Schools
 - School of Economics
 - School of Engineering
 - School of Chemical Technology
 - School of Science
 - School of Electrical Engineering
 - School of Art and Design

Aalto-yliopisto In St.Petersburg ул. Большая Конюшенная 4-6-8. Лит. А

Aalto Center for Entrepreneurship -ACE

- Formed 1st September 2010
- 16 employees

Technology Transfer, Intellectual Property Management, Startup Company Services and Teaching and Research of *Growth Entrepreneurship*



A merger of leading Finnish universities in 2010

University of Art and Design Helsinki (TaiK) Helsinki School of Economics (HSE) Helsinki University of Technology (TKK)

A community of:

- 75,000 alumni
- 20,000 students
- 4,700 faculty & staff
- with 340 professors

Aalto University

Timeline of Aalto University

Photo by Aino Huovio Graduate of Aalto University School of Art and Design



Notable Alumni

Jorma Ollila Engineering '81



Erkki Tuomioja Economics '74

Alvar Aalto

Architecture '21

Eero Aarnio Interior design '57



Paola & Pirjo Suhonen, Clothing design '01 International Business '98

 Jorma Ollila, Chairman of the Board of Directors, Nokia & Shell 4. Photo by Photographic Services, Shell International Ltd
Eero Aarnio, designer 5.

Eero Aarnio, designer Photo by Joanna Moorhouse Taneli Tikka, serial entrepreneur

3.

Taneli Tikka Business '04



A.I. Virtanen Chemistry '19

entrepreneur, MBA Photo by Peter Forsgård Alvar Aalto,

architect and designer Photo by Eva ja Pertti Ingervo, Alvar Aalto –museo

Erkki Tuomioja, the Minister for Foreign Affairs of Finland

Photo from Parliament of Finland

Susanna Majuri Photography '07

- 6. Paola & Pirjo Suhonen, Ivana Helsinki Photo by Katja Presnal
- 7. A.I. Virtanen, Nobel Prize in Chemistry Photo from AaltoA
- 8. Susanna Majuri, "Helsinki School" photographer Photo from Tord Lund

Unique opportunity Investment in the future

Laws that govern universities changed in Finland as of 2010: Aalto enjoys independent governance as a foundation-based university.

- Annual budget 400M€
- Fundraising goal 200M€
- Match funding (x2.5) 500M€



Vase by Hong Sun-Hwan Graduate of Aalto University School of Art and Design



How to get to the top?

Four pillars of the Aalto University's strategy

- 1. Research excellence Original, impactful, interdisciplinary.
- 2. Pioneering education Towards flexible employment and responsible leadership.
- **3. Trendsetting art** Art, architecture and design as key drivers for improving living environments.
- **4. Societal impact** Adding value through entrepreneurship, business liaisons and societal interactions.

Photo by Heli Sorjonen

Close collaboration with the business world

The Aalto University builds and nurtures long-term strategic partnerships with numerous Finnish and international enterprises.















AALTOENTREPRENEURSHIPSOCIETY









Aalto's Expectations from Russia – Strategic Partnerships

In practice:

- International co-operation in Aalto's research focus areas as material science research - including nanotechnology and functional materials
- Increase the possibility of Aalto's researchers for international mobility and vice versa
- To provide an attractive international education and research hub for talented Russian students and researchers
- Expansion of Aalto's global partner networks to Russia and to get experience from Russian Ecosystem
- To create new networks to increase and leverage research from the University and stimulate high-tech entrepreneurship





Art, Business, Science and Technology

School of...

Art and E Design

Economics

Chemical | Technology |

Electrical Engineering

Engineering Science

School of Art and Design

One of the world's most respected schools in its field

- Degree students 1,800
- Doctoral students 250
- Personnel 410
- Professors 46
- Departments

• Other units

Art | Art and Media Pori Design | Media | Motion Picture, TV and Production Design Media Centre Lume Western Finland Design Centre Muova

School of Economics







The leading business school in Finland

- Degree students 3,400
- Doctoral students 280
- Personnel 520
- Professors 58

• Departments

• Other units

Accounting | Communication | Economics | Finance | Information and Service Economy | Management and International Business | Marketing Center for Markets in Transition (CEMAT) | Center for Knowledge and Innovation Research (CKIR) | International Business, Mikkeli Campus | Small Business Center | Start-Up Center

In year 2010 (1) research group in NanoSciences

Photo by Aino Huovio Graduate of Aalto University School of Art and Design

School of Chemical Technology

At the forefront of sustainable development

- Degree students 1,400
- Doctoral students 370
- Personnel 480
- Professors 34
- Departments
- Other units

Biotechnology and Chemical Technology Chemistry Materials Science and Engineering Forest Products Technology Center for New Materials

In year 2010 (13) research groups in NanoSciences

Photo by Adolfo Vera

2 Centres of Excellence in Research

School of Electrical Engineering

Basic research, latest technologies and high quality engineering

- Degree students 2,900
- Doctoral students 520
- Personnel 680
- Professors 51

• Departments

Other units

Automation and Systems Technology | Electronics | Micro and Nanosciences | Radio Science and Engineering | Signal Processing and Acoustics | Electrical Engineering | Communications and Networking Metsähovi Radio Observatory | Micronova Centre for Micro- and Nanotechnology

In year 2010 (8) research groups in NanoSciences

Photo by Juha Juvonen Aalto University

School of Engineering

Research, information and solutions for sustainable development

- Degree students 3,900
- Doctoral students 500
- Personnel 790
- Professors 68
- Departments
- Units

Applied Mechanics | Architecture | Civil and Environmental Engineering | Civil and Structural Engineering | Energy Technology | Engineering Design and Production | Surveying Lahti Center Centre for Urban and Regional Studies YTK

• In year 2010 (2) research groups in NanoSciences

Photo by Aleksi Koskinen

7 Centres of Excellence in Research

School of **Science**

Creating the future through excellence in research

- Degree students 2,600
- **Doctoral students 890**
- Personnel 1,270
- Professors 79

Departments

Other units

Biomedical Eng. and Computational Science | Mathematics and Systems Analysis | Media Technology | Applied Physics | Information and Computer Science Computer Science and Engineering Industrial Engineering and Management Language Centre | Low Temperature Laboratory | Helsinki Institute for Information In year 2010 (16) research groups in NanoSciences

Photo by Aleksi Koskinen.

Areas of excellence

Maarit Karppinen Materials Chemistry of Energy Conversion

Riitta Hari Systems Neuroscience and Neuroimaging

5

Olli Varis Global and international water issues

Esko I. Kauppinen High-performance thinfilm transistors on plastic substrate

Level of institutionalization

between

individuals

formation

Nina Granqvist Emergence of new industries and technologies and renewal of existing industries

emergence of

cognitive frame

a dominant



interaction and

negotiation over

meanings

Pekka Heikkinen the use of wood as a modern building material

1. Maarit Karppinen, Academy Professor, Laboratory of Inorganic Chemistry

2.

Time

institutionalization

of a new field

Photo by Adolfo Vera 4. Riitta Hari, Neuroscientist, Academy Professor, Low Temperature Laboratory Illustration by C. Carl Jaffe

3. Olli Varis, Professor, Water 6. & Development Research Group Photo by Aalto University

Esko I. Kauppinen, Professor, Department of Applied Physics and Center for New Materials Photo by Aalto University Nina Granqvist, Academy of Finland Research Fellow, Department of Management and International Business Image by Nina Grandqvist

7. Pekka Heikkinen, Professor, The Wood Program Photo by Aalto University

Promoting academic entrepreneurship

Aalto Center for Entrepreneurship and Aalto Venture Garage

Photo by Lari Haataja

Aalto Center for Entrepreneurship

Formed 1st September 2010

16 employees

 Technology Transfer, Intellectual Property Management, Startup Company Services and Teaching and Research of Growth Entrepreneurship









Entrepreneurship Entrepreneurship Education Research Stockholm School of Entrepreneurship global venture lab Aalto-yliopisto Kauppakorkeakoulu Pienyrityskeskus AALTOENTREPRENEURSHIPSOCIETY Agent for scientists todai Aalto-yliopisto Kauppakorkeakoulu technology licensing organization Start-Up Center CASTI



Growth

Venturing and

Start-Up Services

••• for problems worth solving

Innovation Services and Technology Transfer









Aalto Venture Garage - AVG

- A hub for entrepreneurs and startups throughout the Baltic Rim.
- A network of experienced coaches to help young startups to grow great business.
- AVG Programs: Startup Sauna,

Summer of Startups, Enternship,

Startup Life (Silicon Valley)



Aalto University



http://aaltovg.com

http://startupsauna.com

ACE - Results 2010



| Total Number of Invention Disclosures | 111 |
|---------------------------------------|--------|
| Patents filed by Aalto University | 20 |
| Patents filed to companies | 30 |
| Annual IPR licenses | 0,4 M€ |
| Number of Companies Started | 15 |
| | |



A Research Project Looking for a Partner

High-Mobility Carbon Nanotube Thin-Film Transistors

- A Joint Invention made by Aalto University and University of Nagoya
 - Professor Esko Kauppinen's research group from Department of Applied Physics
- A field-effect Thin-Film Transistor (TFT) using Carbon NanoTubes (CNT). These TFT's can provide high-performance, flexible and transparent electronic devices with low-cost non-vacuum processes.
- Our new invention is to produce CNT TFT's by filtration and transfer process with as-grown nanotubes in which CNT's grown by floating catalyst method are directly filtrated in dry environment at room temperature and then transferred to rigid or flexible substrates. The dry filtration process yields into high carrier mobility and on-off ratio.
- This approach can be extended and scaled up to large scale production of highperformance TFT's for flexible electronic devices.
- Patenting :





Thank you for your attention

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Университет Аатто в Санкт-Петербург

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Photo by Tuuli Sotamaa Aalto University