

1/2024



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PROFILE

I am Master of Science in Materials Physics and Licentiate of Science (Tech.) specialized to micro and nanotechnology with wideranging interest to scientific-technical matters. Personal strengths are systematicity, collection of information and exact approach to work.

EDUCATION

Fall 2023	Fitech: Introduction to Functional Materials, Properties of Functional Materials, Application of Functional Materials
09/2020-06/2022	Master of Science, University Of Turku Materials Physics Important courses: Pharmaceutical nanotechnology, Materials for biomedical applications, Electron and ion spectroscopy, Applied Fourier transform infrared and Raman spectroscopy, Magnetism and spintronics
01/2010-11/2017	Licentiate of Science (Tech.), Aalto University School of Electrical Engineering, Micro- and Nanotechnology Important topics: thermoelectrics, microscopy of nanomaterials, MEMS resonator networks, nanoscience
09/2004-12/2009	Master of Science (Tech.), Helsinki University of Technology Micro- and nanosystems, Optical technology and optical communications Important topics: nanotechnology, photonics, microsystems, micro- and nanofabrication, optoelectronics

PROFESSIONAL EXPERIENCE

1/2022-6/2022	Master's Thesis, Materials Research Laboratory, University of Turku I did my Master's thesis "Synthesis and characterization of gallium oxide nanocrystals". This work included synthesis of gallium oxide nanocrystals by placing GaAs piece into hot water and the subsequent characterization of the end result with SEM (scanning electron microscope) and energy dispersive X-ray spectroscopy. Some samples were sputtered in ultra high vacuum before synthesis. Nanocrystal surface density and size distribution modification possibilities though surface modification or seeding showed promise. https://urn.fi/URN:NBN:fi-fe2022061747701
11/2010-10/2013	Grant Researcher, Aalto University School of Electrical Engineering. The Jenny and Antti Wihuri Foundation for full-time doctoral thesis work from subject : Optically and electrically detected functional nanostructures. Possible applications: detectors for lab-on-chip, combining fotonics and electronics. Use of FIB (focused ion beam) and SEM in Micronova cleanroom, and circuit simulations of coupled MEMS (microelectro mechanical systems) resonator networks. I continued the research of resonator networks in my licentiate's thesis.
01/2009-08/2009	Research assistant, Department of Micro- and nanotechnology Helsinki University of Technology I did my Master's Thesis, title: "Kohdistetun ionisuihkun ja kryogeenisen reaktiivisen ionisyväetsauksen yhdistelmäprosessin karakterisointi". For the thesis work, I learned to use FIB/SEM machine in Micronova cleanroom. The characterized method simplifies and speeds fabrication of different micro- and nanostructures by

	creating the etch mask by gallium doping the material with FIB. https://urn.fi/URN:NBN:fi:aalto-201203071345
	Cleanroom experience from several years. Basics of atomic force microscopy and transmission electron microscopy. Multiple literature reviews.

IT SKILLS

Operating systems	Windows, Linux	good
Applications	Gwyddion, ImageJ	good
Programming	Java, Perl, LaTeX, Python	satisfactory
Scientific languages	Mathematica, Matlab, Maxima, APlac, ngspice	good

I have assembled and updated multiple desktop computers and own file server for home network with OpenSUSE Leap operating system. Small Arduino project for monitoring flue gas temperature in outer building and sending it wirelessly to another Arduino for displaying in main building. Basics of machine learning with Matlab from Åbo Academi course.

LANGUAGE SKILLS

Finnish	mother tongue	Swedish	satisfactory
English	good	German	satisfactory

HOBBIES

Following news, especially from science, technology and IT fields. Reading articles and collecting information. Reading popularized science books in Finnish and fiction available in internet. Forestry work, maintenance of machines and buildings at family farm.

REFERENCES

Available upon request.

PUBLICATIONS

Licentiate's Thesis; "Coupled MEMS resonator networks", Aalto University, 2017
<https://urn.fi/URN:NBN:fi:aalto-201711067491>

Aluminum oxide mask fabrication by focused ion beam implantation combined with wet etching. / Liu, Zhengjun; Iltanen, Kari; Chekurov, Nikolai; Grigoras, Kestutis; Tittonen, Ilkka. In: NANOTECHNOLOGY, Vol. 24, No. 17, 2013, p. 175304. <https://doi.org/10.1088/0957-4484/24/17/175304>

Other works

Topical Project: "Nanopartikkelit korkean intensiteetin kohdistetussa ultraääniterapiassa", 2021
<https://iltanenkari.fi/Nanopartikkelit%20korkean%20intensiteetin%20kohdistetussa%20ultra%20%C3%A4%C3%A4niterapiassa.pdf>

Essay: "Nanomedicine and printing technologies", 2019
<https://iltanenkari.fi/Nanomedicine%20and%20printing%20technologies.pdf>

Additional works available at <https://iltanenkari.fi/>.