



Electron Physics Laboratory Department of Electrical and Communications Engineering

Electron Physics Laboratory is located in MICRONOVA, TKK's centre for micro- and nanotechnology. We focus on developing new types of semiconductor devices and support this activity with extensive materials research. The laboratory also provides higher education in semiconductor technologies and our aim is to provide excellent abilities and knowledge in that field for our under- and postgraduate students. A wide range of courses in semiconductor technology, both theoretical and experimental, is provided.



RESEARCH AND EXPERTISE

Our research focuses on three areas:

1. Semiconductor Materials
2. Gas Sensors
3. Novel Electronic Devices.

Current research projects related to these focus areas are: Dynamics of Microscopic Defects in Silicon (1); New Materials and Structures for Gas Sensors (1),(2); Room Temperature Spintronics; and Spintronics Based on Mn Doped GaAs (1), (3) and Silicon-Related Light Emitters (3). We have extensive expertise in semiconductor device processing and materials characterisation including deep level spectroscopy, recombination lifetime measurements and surface potential mapping. We have also developed methods for defining quantitatively metal contamination of silicon wafers and have techniques for characterising the gettering efficiency in silicon.

STAFF

Our staff includes 2 professors, 1 senior researcher, 2 post-doc researchers and 6 postgraduate students

ACADEMIC DEGREES IN 2005

In 2005, 2 D.Sc. (Tech.), 2 Lic. Sc. (Tech.) and 1 M.Sc (Tech.) graduated from our laboratory.

MAJOR FACILITIES AND EQUIPMENT

A dual Molecular Beam Epitaxy system for the deposition of semiconductors and metals, Deep level transient spectroscopy, Lifetime scanner, Hall measurement system, and Kelvin probe spectroscopy.

CONTACT PERSON(S)

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MORE INFORMATION: <http://www.tkk.fi/Yksikot/Elfys/>