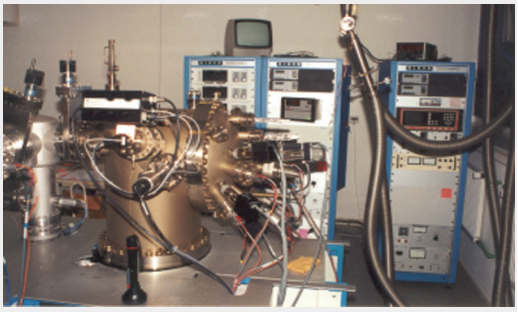
Poland: Institute of Electron Technology

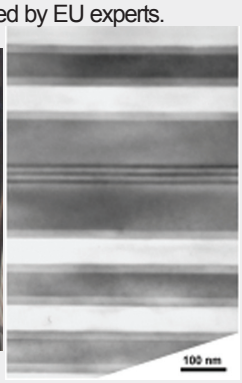
The Institute of Electron Technology (ITE) is the major Polish research and development centre with the primary focus on semiconductor electronics and technology. The mission of the ITE is to conduct basic and applied research in order to develop and commercialise innovative micro- and nanotechnologies and their applications in semiconductor microelectronics, photonics, optoelectronics and micromechanics. ITE is equipped with unique CAD and technological facilities, including pilot processing line for silicon MEMS/MOEMS devices. The Institute currently employs 288 people. Scientific staff includes 14 professors, 5 associate professors, 34 Ph.D.'s and 119 assistant research workers specializing in electronics, physics, chemistry and material technology. Two Centres of Excellence **CEPHONA** (Physic and Technology of Photonic Nanostructures) and **MANTARC** (Micro- and Nanotechnology Applied Research Centre) were established in ITE by the decision of Minister of Science, as a result of positive evaluation performed by EU experts.

The main research topics are:

- low-dimensional structures and photonic devices
- silicon microsystems and nanostructures
- photodetectors, radiation detectors, micro- and nano- devices for fundamental research in physics, chemistry and biomedicine.
- design of: analog-digital ASIC's, IC's cores in the form of behavioral descriptions, systems on chip, embedded systems.



MBE for growth III-V low-dimensional structures.



Cross section of MBE grown VCSEL structure.

The CEPHONA Centre:

conducts research in the three main fields:

- Microcavity physics, technology and applications
- High power semiconductor lasers
- Development of new technologies for photonic devices and increase of the level of applied research.

Class 100 Lithography Clean Room

The activity of MANTARC Centre:

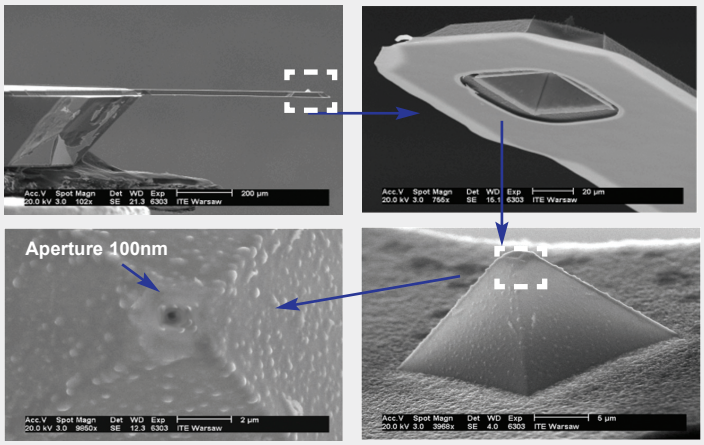
focuses on applied research in the field of integrated microelectronic, micromechanical and optoelectronic systems and devices (MEMS/MOEMS). The Centre aims at becoming a national resource for applications of MEMS/MOEMS micro- and nanotechnologies in order to meet scientific and technical challenges of the industry. The Centre is member of EUROPRACTICE and NEXUS initiatives as a partner of competence centre for microsystems fabrication offering access to advanced micro- and nano- technologies for industrial organisations.Both centers relay on highly qualified research staff and state-of-the-art equipment which allows for carrying out competitive research in their respective fields of interests. Also, they widely cooperate with scientific and industrial partners from both Poland and abroad. Finally, apart of research activities, both centres aim at providing strong support for educational activities for Ph.D. students, young researchers, applied sciences researchers and engineers.

ITE participation in Framework Programme 5:

AGETHA, Amber/Green Emitters Targeting High Temperature Applications
AMORE, Advanced Matgnetic Oxides for Responsive Engineering
CELDIS, Centre of Physics and Technology of Low-Dimensional Structures
DENIS, Development of Low Disclocation Density GaN Substrates
E-COLLEG, Advanced Insfrastructure for Pan-European Collaborative Engineering
GSQ, Gallium Arsenide Second-Window Quantum Dot Lasers
MOEMSC, A European Network of Competencies in MOEMS Devices and Technologies
MST_SYSTEMS, Design House consortium for MST Take up action
NANOPHOS, Nanostructured Photonic Sensors
POLECER, Polar Electroceramics
REASON, Research and Training Action for System on Chip Design
ROBOSEM, Development of a Smart Nanorobot for Sensor-based Handling in a Scanning Electron Microscope
SEWING, System for European Water Monitoring
SODAMOS, Source Drain Architecture for Advanced MOS Technology
SUCIMA, Silicon Ultra Fast Cameras for Electron and Gamma Sources in Medical Applications
TERAVISION, Terahertz Frequency Imaging Systems for Biomedical & Other Applications
WILD-EAST, Wide Aperture Coherent Laser Diodes for Erbium Doped Fibre Amplifiers

ITE participation in Framework Programme 6:

- HEALTHY AIMS Project, Implantable micro-sensors and micro-systems for ambulatory measurement and control in medical products.(IP)
- MINAEAST NET Project, Micro- and Nanotechnologies going to EASTern Europe through NETworking.(SSA)



Microprobe for Scanning Near Optical Microscopy

Dr Piotr Dumania, Deputy Director for Research in the Institute of Electron Technology (ITE), Warsaw, Poland. He graduated from Warsaw University of Technology in 1974. He joined ITE, where he was working as a device engineer for semiconductor processing responsible for technology development of CMOS IC's and implementing them into mass production. From 1990 he was supervising the development of silicon detectors and micro-electro-mechanical systems (MEMS). Results of his research were presented in more than 60 papers published in international journals and over 70 conference presentations. Piotr Dumania is responsible for international scientific cooperation with special focus on participation in EU Framework Programmes. Among other international activities, he was a leader for Polish-German research project for MEMS and an organizer of the NAS-Europractice/Nexus Workshop, Feb 2001, Warsaw.

Contact:

Dr. Piotr Dumania, E-mail: pdumania@ite.waw.pl
AL. LOTNIKÓW Street, 32/46, 02-668 WARSAW, POLAND
fax.: (48 22) 847 06 31
Web: www.ite.waw.pl