

Organization: *National Institute for Research and Development in Microtechnologies (IMT-Bucharest)*

Web Page: *www.imt.ro*

Country: *Romania*

Main Activity: *Research*

Department: *Laboratory of Micro/Nano Photonics*

Contact Person: *Mihai Kusko*

E-mail: *mihaik@imt.ro*

Other Contact Data: *PO Box 38-160, Bucharest 023573, Romania, tel: +40.21.490 84 12; +40.21.490 85 84; +40.21.490 82 12; fax: +40.21.490 82 38*

Profile:

- Design, fabrication and characterization of photodetectors on silicon and compound semiconductors (A IIB V, A IIB VI);

Design, modelling, fabrication and characterization of optoelectronic integrated circuits and optical-MEMS; Micromachining technologies for optical-MEMS;

Development of components for photonic integrated circuits (waveguides, interferometers, couplers, and special photodetectors) based on various materials (silica, SiON, organic and polymeric active materials);

Development of specific technological techniques for bulk and surface micromachining (including silicon micromachining for 2D and 3D micro and nanostructures);

Development of microphotonic components, based on sol-gel technology;

Modelling and simulation of micro and nano optoelectronic and photonic devices (software simulator for photonic circuits and structures, photonic band-gap materials and devices, micro-optical elements based on FDTD method);

Development of polymer technology (controlled refractive index and transmission) for integrated optics, sensitive layers for chemical and biosensors with optical detection;

Participation to European Projects:

- Participation in FP6 \"Wafer bonding and Active Passive Integration Technology and Implementation\"

-WAPITI project. Main activity: design and simulation of vertically coupled microring resonators with dedicated softwares OptiFDTD and OptiBPM.

ICT-2007.3.5: Photonic components and subsystems

competence / resources

Design and simulation of microphotonic devices and circuits as integrated optic based circuit and devices (vertically and laterally coupled microring resonators devices with application in communications and sensing, long period waveguide grating with application in sensing, etc) and microoptical components (micromachined Fabry-Perot tunable filters, diffraction optical elements, etc).

Software for design and simulation of passive and photonic components (Opti FDTD 6.0 and OptiBPM 8.0); design software for integrated and fiber optical devices with gratings (OptiGrating); home-made software for analysis of the reflection/transmission of multiple layer system; software for designing diffractive optical elements 3LITH.

proposal / interest

Design and simulation of novel microphotonic components and devices with application in communication and environment and health