**Instytut Technologii Elektronowej**
**Al. Lotników 32/46, 02-668 Warszawa**
**Department of Integrated Circuits and Systems**
**Division of Silicon Microsystems and Nanostructure Technology**
**Department of Semiconductor Sensors**

# 3 D Integrated Micro/Nano Modules For Easily Adapted Application

**Akronim: e-CUBES Contract No. 026461**

***http://ecubes.epfl.ch/public/***

## COORDINATOR

- Dr. Werner Weber, Infineon

## PARTICIPANTS

- Infineon, Munich, Germany
- Alcatel Alenia Space, Toulouse, France
- Infineon, Graz, Austria
- Honeywell Romania, Bucharest, Romania
- Philips, Eindhoven, Netherlands
- Philips Research, Aachen, Germany
- SensoNor, Horten, Norway
- Sintef, Oslo, Norway
- 3D Plus, Buc, France
- Thales, Elancourt, France
- CEA, Grenoble, France
- FhG, Munich, Germany
- IMEC, Leuven, Belgium
- Tyndall, Cork, Ireland
- EPFL, Lausanne, Switzerland
- TU Berlin, Berlin, Germany
- Uni Paderborn, Paderborn, Germany
- Uppsala University, Uppsala, Sweden
- PITS, Leuven, Belgium
- Philips Design, Eindhoven, Netherlands
- Instytut Technologii Elektronowej, Warszawa, Poland

## OUR ROLE IN THE PROJECT

Modeling and simulation of vertical integration effects (electrical, thermal, mechanical) for signal integrity and timing analysis to ensure optimal system behaviour.

## PROJECT DESCRIPTION

The subject of the project is the design and integration of 3-dimensional microelectronic systems (e-Cubes) consisting of sensor, processing, radio and power unit.

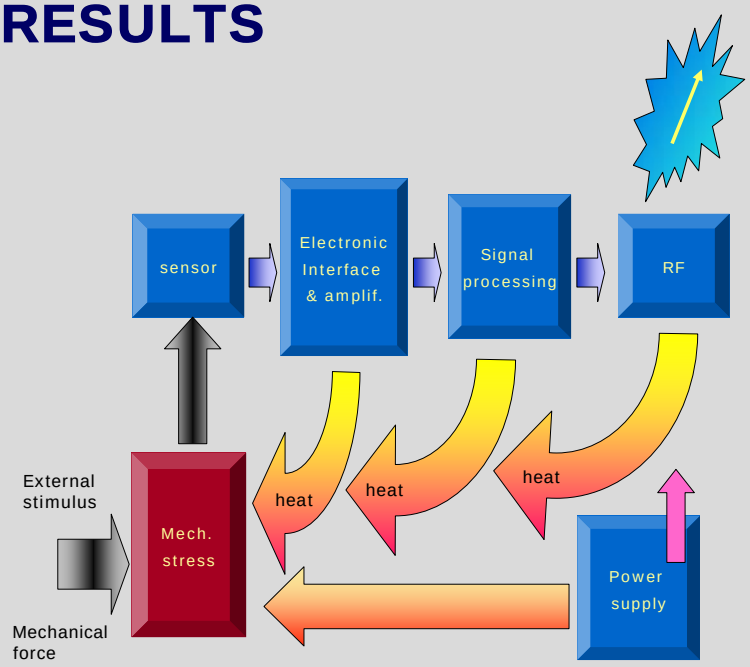
3-D integration technology reduces size and length of interconnections, increasing the packaging denisity, posting at the same time difficult challenges related to process and material integration, electromagnetical interfrence, electro-thermal and thermo-mechanical behaviour.

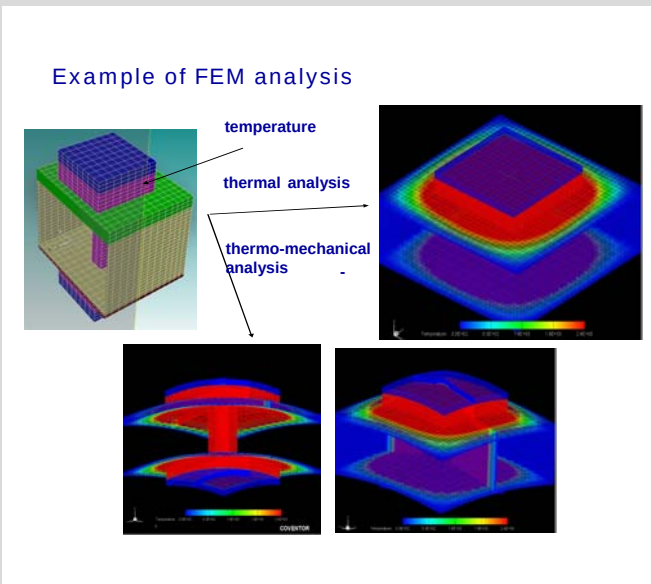
All these aspects are to be taken into consideration in the design process of functionally and technologically diverse subsystems. Multilevel and multidomain modeling and simulation is the tool fulfilling these requirements.

The e-Cubes concept will be proven in:

- intelligent monitoring systems in space research
- wireless sensor networks for health
- complex sensor networks for automotive applications.

## RESULTS




**Contact person: Jerzy Szynka**
**phone: +48 22 5487850, szynka@ite.waw.pl**