

## International Workshop

# Advance Atomic Force Microscopy Techniques

**25<sup>th</sup> October 2013**

**103-105 Bd. Muncii, E11, Cluj-Napoca, Romania**

**Organized by:**

**Technical University of Cluj-Napoca  
Micro Nano System Laboratory - MiNaS**

**[www.minas.utcluj.ro](http://www.minas.utcluj.ro)**

**and**

**Park Systems, South Korea**

**[www.parkafm.com](http://www.parkafm.com)**

**Schaefer South-East Europe SRL Business Unit,  
Romania**

**[www.schaefer-tec.eu](http://www.schaefer-tec.eu)**



**Micro-Nano  
Systems Laboratory**



### **Main Objectives of the Workshop:**

These small, interactive output oriented meeting is aimed at opening up new directions in research to explore emerging research fields with potential impact on new developments in AFM characterizations focused on nanomechanics and nanotribology. This workshop, last 1 day, has participation from Romania and South Korea, and involves mature scientists as well as young, independent researchers and scholars with leadership potential. The relatively small number of researchers involved provides an ideal platform for focus on the topic including AFM laboratory tests.

### **Workshop Motivation**

The lifetime of micro and nano - systems is strongly influenced by the operating conditions, the materials constituting the microsystem components, the manufacturing technology and not at least the encapsulation process. The development of a microsystem for sensing or actuation to achieve operational reliability and a long lifetime it must take into account, through an interdisciplinary approach, the interdependence of material - manufacturing technology and operating conditions. Considering the high number of microsystems that are part of a machine or device and the key role they have on safety in operation, more attention should be paid to their design and fabrication.

International experience of the workshop's organizer and formation of a research group at the Technical University of Cluj-Napoca has led to the development and further research in this field in Romania. Some of the obtained results have already been published in journals and presented at prestigious conferences abroad. Recognition potential to conduct international competitive research in Romania has led to the initiation of this scientific event. By inviting outstanding specialists this event will contribute to improving the quality of scientific research and promote this field in Romania.

## Technical University of Cluj-Napoca



The history of technical higher education in Cluj Napoca goes back to the beginning of the previous century. On February 1<sup>st</sup> 1920 the Industrial College was founded in Cluj-Napoca. The new education institution passed afterwards through a series of transformations. In 1992 the Polytechnic Institute was renamed to the Technical University of Cluj-Napoca, and the three existing faculties at that time were restructured into seven faculties: Automation and Computer Science, Electronics and Telecommunications, Electrical Engineering, Civil Engineering, Machine Building, Mechanical Engineering, Material Science and Engineering, as well as the Technical, Business and Administration College. Starting with the academic year 1998-1999 the structure of the Technical University was completed with the Faculty of Architecture and Urban Planning.

Nowadays the Technical University of Cluj-Napoca trains specialists in the technical field (mechanical, electrical and civil engineering as well as architecture) through long and short term education programmes, postgraduate and PhD studies.

Scientific research has been an essential preoccupation of the academic and research staff of the TUCN. The scientific potential of the University made it capable of organizing a series of outstanding scientific events attended by a large number of Romanian and foreign specialists. The practical results of the research activity are reflected in numerous contracts and projects with domestic and international financing.

The University's correlation to European standards is reflected by the international conventions it is part of and by its participation in a wide range of European education programs: TEMPUS-PHARE, SOCRATES, ERASMUS, LEONARDO, CEEPUS. A series of international conventions, agreements and protocols were signed with universities from France, Italy, Germany, the USA, Austria etc. Since 2003 TUCN has been a member of the European Association of Universities.

Nowadays the Technical University of Cluj-Napoca is a modern technical higher education institution, passing through a period of genuine rebirth and confirming authentic capabilities for scientific and technical creation.

## PROGRAMME

Friday, 25th October 2012

- 09.00-09.30 **Welcome**  
Technical University of Cluj-Napoca, Faculty of Machine Building, Room E11, 103-105 Bd. Muncii, Cluj-Napoca
- 09.30-10.00 **AFM research activities in MiNaS Laboratory**  
**Marius Pustan**  
Technical University of Cluj-Napoca, Romania
- 10.00-10.30 **Park Systems AFM Presentation**  
Park Systems Co., South Korea
- 10.30-10.45 Coffee break
- 10.45-12.45 **Laboratory AFM Exploration**  
**Antoniu Moldovan**  
Schaefer South-East Europe SRL Business Unit Romania
- 12.45-13.00 **Conclusions**

### Convenors:

Prof. Marius PUSTAN, PhD ME  
Prof. Corina BIRLEANU, PhD ME

Technical University of Cluj-Napoca  
Micro&Nano Systems Laboratory  
<http://minas.utcluj.ro>  
103-105 Bd. Muncii, E11, Cluj-Napoca, Romania  
Phone: +40264401665  
[Marius.Pustan@omt.utcluj.ro](mailto:Marius.Pustan@omt.utcluj.ro)  
[Corina.Birleanu@omt.utcluj.ro](mailto:Corina.Birleanu@omt.utcluj.ro)