



# 14<sup>th</sup> International Conference on Nuclear Microprobe Technology and Applications

Sunday 06 July 2014 - Friday 11 July 2014

Palazzo del Bo and Centro Culturale San Gaetano,  
Padova, Italy

## Programme



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## **Sunday 06 July 2014**

**Palazzo Moroni: registration and welcome party - (18:30-21:30)**

# Monday 07 July 2014

## **Registration - (08:30-09:00)**

## **Opening - Aula Magna (09:00-09:50)**

### **Plenary 1 - Aula Magna (09:50-11:10)**

- Convener: Pinheiro, Teresa

time	title	presenter
09:50	<b>Invited:</b> Cold beams and focused beams: new technology for new microprobes in the quantum era	JAMIESON, David
10:30	<b>Invited:</b> The functionalization of single atoms addressed by ion beam implantation	MEIJER, Jan

## **Coffee Break - (11:10-11:40)**

### **Plenary 2 - Aula Magna (11:40-13:00)**

- Convener: Bisello, Dario

time	title	presenter
11:40	<b>Invited:</b> Three dimensional silicon micromachining using a nuclear microprobe	BREESE, Mark
12:20	<b>Invited:</b> Radiation effects microscopy in microelectronic devices using a heavy ion nuclear microprobe	VIZKELETHY, Gyorgy

## **Lunch Break - (13:00-13:50)**

### **Plenary 3 - Aula Magna (14:00-16:00)**

- Convener: Grime, Geoffrey

time	title	presenter
14:00	<b>Invited:</b> Nuclear Microscopy of biological cells using MeV ions: A critical review.	WATT, Frank
14:40	<b>Invited:</b> Applications of nuclear microprobe imaging in neuroscience	ORTEGA, Richard
15:20	<b>Invited:</b> Radiobiological and medical research at the ion microprobe SNAKE	GREUBEL, Christoph

## **Coffee Break - (16:00-16:30)**

### **ICNMTA2014 Group photo - (16:30-16:40)**

### **Plenary 4 - Aula Magna (16:40-18:00)**

- Convener: Jaksic, Milko

time	title	presenter
16:40	<b>Invited:</b> Ambient pressure molecular concentration mapping using simultaneous MeV-SIMS and PIXE	WEBB, Roger
17:20	<b>Invited:</b> The nuclear microprobe in cultural heritage studies: state of the art and challenges	CALLIGARO, Thomas

## Tuesday 08 July 2014

### **Session 1 - Nuclear Microprobe Technology 1 - Auditorium (08:30-10:40)**

- Convener: Rajta, Istvan

time	title	presenter
08:30	<b>Invited:</b> Development of microbeam technology to expand its applications at TIARA	KAMIYA, Tomihiro
09:00	<b>Invited:</b> The first interdisciplinary experiments at the IMP high energy microbeam	DU, Guanghua
09:30	<b>Invited:</b> Transmission diamond membrane detector and vacuum window for external microbeams	SKUKAN, Natko
10:00	The high-current mode performance of the proton beam at Ljubljana nuclear microprobe coupled to a multicusp ion source	PELICON, Primož
10:20	Development of high brightness ion sources with an outlook to sub 10 nm beam spot size for a compact proton beam writing system	VAN KAN, Jeroen Anton

### **Coffee Break - (10:40-11:10)**

### **Session 2 - Nuclear Microprobe Technology 2 - Auditorium (11:10-13:10)**

- Convener: Du, Guanghua

time	title	presenter
11:10	<b>Invited:</b> Deuterium Microscopy using Deuteron-Deuteron Scattering	REICHART, Patrick
11:40	<b>Invited:</b> MeV-SIMS with swift heavy ions at low pressure	MATSUO, Jiro
12:10	Miniature high resolution x-ray spectrometer for ion microprobe	FAZINIC, Stjepko
12:30	The DEFEL pulsed beam facility at INFN-LABEC, Florence: from millimetric to micrometric spatial resolution	FEDI, Mariaelena
12:50	Upgrade of the CSIRO Nuclear Microprobe aimed at high definition PIXE imaging	RYAN, Chris

### **Lunch Break - (13:10-15:20) (14:20-15:20 International Committee Meeting)**

### **Session 3 - Nuclear Microprobe Applications: Biology 1 - Auditorium (15:20-17:00)**

- Convener: Ynsa, Maria Dolores

time	title	presenter
15:20	<b>Invited:</b> Dual elemental and molecular imaging by MeV SIMS and micro-PIXE on biological tissue samples	OGRINC POTOČNIK, Nina
15:50	<b>Invited:</b> Ion beam induced fluorescence imaging in biological systems	BETTIOL, Andrew
16:20	Multimodal Correlative Microscopy: combination of ion beam micro-analysis with complementary microscopy techniques for the study of nanoparticles internalization	BARBERET, Philippe
16:40	The RIKEN microbeam facility: biological application using Fucci cells	PUTTARAKSA, Nitipon

### **Poster Session with Cheese and Wine - Agorà (17:00-19:30)**

## Wednesday 09 July 2014

### Permanent Poster Exhibition - Agorà

#### Session 4 - Nuclear Microprobe Applications: Biology 2 - Auditorium (08:30-10:30)

- Convener: Ortega, Richard

time	title	presenter
08:30	<b>Invited:</b> Reduced side effects by proton microchannel radiotherapy – studi in a human skin model	DOLLINGER, Gunther
09:00	<b>Invited:</b> Automated high throughput analysis of metal atoms in biological macromolecules using Ion Beam Analysis	GRIME, Geoffrey
09:30	Chemical imaging of bone regeneration induced by bioactive glass implants in vivo: a multimodal and quantitative micro-ion beam analysis of mineralization and trace elements at the bone interface	LAO, Jonathan
09:50	In-vivo 3D PIXE-micron-CT imaging of Drosophila using contrast media	MATSUYAMA, Shigeo
10:10	Targeted irradiation of cellular substructures at SNAKE	SIEBENWIRTH, Christian

### Coffee Break - (10:30-11:00)

#### Session 5 - Nuclear Microprobe Applications: Material Science - Auditorium (11:00-12:40)

- Convener: Kamiya, Tomihiro

time	title	presenter
11:00	When NMP meets ICF target	SHEN, Hao
11:20	Boron detection in diamond by the nuclear reaction $^{11}\text{B}(p, \gamma)^{8}\text{Be}$	YNSA, Maria Dolores
11:40	Assessment of dye distribution in sensitized solar cells by microprobe techniques	BARREIROS, M. Alexandra
12:00	Light element micro-analysis at AIFIRA facility	SORIEUL, Stephanie
12:20	Channeling Contrast Microscopy of GeSn virtual substrates	OSIPOWICZ, Thomas

### Conference Excursion to Venice Lagoon - (13:45-23:00)

# Thursday 10 July 2014

## Permanent Poster Exhibition - Agorà

### Session 6 - Nuclear Microprobe Applications: Ion Beam Material Micro-Modification - Auditorium (08:30-10:10)

- Convener: Olivero, Paolo

time	title	presenter
08:30	<b>Invited:</b> MeV ion beam mask lithography of parylene-C and parylene-F	WHITLOW, Harry J.
09:00	<b>Invited:</b> Ion beam writing on diamond in micrometer scale at the LIPSION nanoprobe	LUHMANN, Tobias
09:30	Deep Ion Beam Lithography in diamond: towards the nanoscale	PICOLLO, Federico
09:50	The use of focused ion beams for the realization of nano-structures in diamond	KALISH, Rafi

### Coffee Break - (10:10-10:30)

### Session 7 - 5<sup>th</sup> Proton Beam Writing Workshop - Auditorium (10:30-12:30)

- Convener: van Kan, Jeroen Anton

time	title	presenter
10:30	<b>Invited:</b> Proton Beam Writing applications into DNA nano fluidics	VAN KAN, Jeroen Anton
11:00	<b>Invited:</b> A flexible dielectrophoretic device with high-aspect-ratio pillar arrays fabricated by proton beam writing	NISHIKAWA, Hiroyuki
11:30	Development of embedded Mach-Zehnder optical waveguide structures in PDMS thin films by proton beam writing	KADA, Wataru
11:50	Fabrication of three-dimensional SU-8 microchannels by Proton Beam Writing for microfluidics applications: fluid flow characterisation	ALSHEHRI, Saad
12:10	Proton beam lithography in a new, liquid phase negative resist material	HUSZANK, Robert
12:30	<b>Panel Discussion:</b> Nano positioning stages for Nano Probes used in Proton Beam Writing and Nuclear Microscopy	

### Lunch Break - (13:00-14:00)

### Session 8 - Nuclear Microprobe Applications: Microelectronics - Auditorium (14:00-15:10)

- Convener: Vizkelethy, Gyorgy

time	title	presenter
14:00	<b>Invited:</b> Development of diagnostic method for deep levels in semiconductors using charge induced by heavy ion microbeams	OHSHIMA, Takeshi
14:30	Radiation Hardness of n-type SiC Schottky Diodes	PASTUOVIC, Zeljko
14:50	Ion Electron Emission Microscopy at LNL	SILVESTRIN, Luca

### Refreshment - (15:10-16:00)



**Session 9 - International collaborations and initiatives - Auditorium (16:00-17:45)****- Convener: Rigato, Valentino**

time	title	presenter
16:00	<b>Invited:</b> New initiatives to advance Accelerator-based Research & Development	SIMON, Aliz
16:30	<b>Round Table:</b> New strategies for fundraising to support projects in micro and nano ion beam technologies	

**18:45 - Meeting at Eremitani Civic Museum****18:45-20:45 - Visit to Cappella degli Scrovegni and Eremitani Civic Museum****20:45-22:30 - Social Dinner at Eremitani Civic Museum Magnolia Cloister**

## Friday 11 July 2014

### **Session 10 - Nuclear Microprobe Applications: Geology and Environmental Science**

#### **- Auditorium (09:00-10:30)**

- Convener: Kristiansson, Per

time	title	presenter
09:00	<b>Invited:</b> High-Speed PIXE: Fast Elemental Analysis with a Colour X-Ray Camera	BUCHRIEGLER, Josef
09:30	Deuterium/Hydrogen microscopy in astrogeological material	ROS, Linus
09:50	Measurement of ratios of oxygen isotopes with pNRA at a microprobe beamline.	BORYSIUK, Maciek
10:10	Elemental compartmentalization changes of marine diatoms as a reporter of biogeochemical cycles	PINHEIRO, Teresa

#### **Coffee Break - (10:30-11:00)**

### **Session 11 - Nuclear Microprobe Applications: Art and Archaeometry -**

#### **Auditorium (11:00-12:30)**

- Convener: Castelli, Lisa

time	title	presenter
11:00	<b>Invited:</b> Evidences for an Afghan provenance of lapis lazuli utilized for glyptic by ancient Egyptian combining micro-PIXE and XRF results	RE, Alessandro
11:30	Correlation between Ionoluminescence signal and the manufacturing conditions of the clay bodies of ancient tiles	CORREGIDOR, Victoria
11:50	Implementation of ionoluminescence in the IBA micromapping setup of AGLAE facility	PICHON, Laurent
12:10	A comparative study of Etruscan and Tartesic gold jewels by micro-XRF	SCRIVANO, Simona

#### **Closing Remarks - Auditorium (12:30-13:00)**