

# Workshop on Biomedical and Life Sciences Application of Synchrotron Radiation

12 November 2015

Venue: University of Oulu, Oulu, Finland  
Kontinkangas campus, Aapistie 7A, Room F101

## SESSION I: THEORY AND PRACTICE. Chair: Juha Nikkinen

- 9.00 Opening words  
Miika Nieminen, University of Oulu
- 9.05 Synchrotron radiation – theory and practise  
Pekka Suortti, University of Helsinki
- 9.40 Finland's research infrastructure (FIRI): Strategy and roadmap for MAX IV lab.  
Marko Huttula, University of Oulu
- 9.55 How to gain access to European synchrotron facilities  
Liisa Porra, University of Helsinki
- 10.10 Biocenter Finland, Instruct-FI and Instruct: Towards routine exchange visits for life science researchers from Finland to Europe and vice versa  
Rikkert Wierenga, University of Oulu

## SESSION II: CELLULAR LEVEL AND BEYOND. Chair: Juha Nikkinen

- 10.30 Life Science opportunities at MAX IV (with a focus on Structural Biology).  
Tomas Lundqvist, Max IV
- 11.00 New views of whole cells using MAX-IV: can we freeze structure and chemistry at 10nm?  
Chris Jacobsen, APS
- 11.30 Synchrotron X-ray phase nano-tomography  
Heikki Suhonen, University of Helsinki
- 11.50 Lunch

## SESSION III: MEDICAL AND BIOMEDICAL APPLICATIONS. Chair: Simo Saarakkala

- 12.50 State of the art in bioimaging and plans for MAX IV  
Rajmund Mokso, PSI and from autumn MAX IV
- 13.20 Update in biomedical applications of synchrotron radiation & lung imaging.  
Liisa Porra, University of Helsinki
- 13.40 Imaging on breast cancer  
Jani Keyriläinen, Turku University Hospital

- 14:00 Structure-function-compositional relationships in bone can be revealed with synchrotron radiation (and neutron sources)  
Hanna Isaksson, Lund University
- 14.20 Imaging of articular cartilage and subchondral bone using synchrotron micro-CT  
Sakari Karhula, University of Oulu
- 14.40 Discussion
- 15.00 Adjournment

## Information

The workshop is targeted for researchers and students interested in using European synchrotron facilities for the purpose of biomedical research and life science applications.

Number of lecture hours: 5, equivalent of 0.2 ECTS credits

Workshop homepage:

Registration by 30 October using the link <http://bit.ly/IJSJGo8>

The workshop is hosted by the Research Unit of Medical Imaging, Physics and Technology, University of Oulu in collaboration with the Department of Physics, University of Oulu and Department of Physics, University of Helsinki.

There is no attendance fee. Each participant is responsible for one's own travel costs.

Campus map: [http://www oulu fi/sites/default/files/content/ltk\\_kampus\\_2012.pdf](http://www oulu fi/sites/default/files/content/ltk_kampus_2012.pdf)

## Organisers

Miika Nieminen, professor, chief physicist  
Research group of Medical Imaging, Physics and Technology, University of Oulu, Department of Diagnostics, Oulu University Hospital, Finland  
[miika.nieminen@oulu.fi](mailto:miika.nieminen@oulu.fi) Tel +358 40 5518246

Marko Huttula, professor  
Nano and Molecular Systems Research Group, University of Oulu, Finland

Simo Saarakkala, associate professor  
Research group for Medical Imaging, Physics and Technology, University of Oulu, Finland

Juha Nikkinen, chief physicist, adjunct professor  
Department of Oncology, Oulu University Hospital  
Research group for Medical Imaging, Physics and Technology, University of Oulu, Finland

Liisa Porra, adjunct professor  
Department of Physics, University of Helsinki, Finland