



The Abdus Salam
**International Centre
for Theoretical Physics**
50th Anniversary 1964–2014

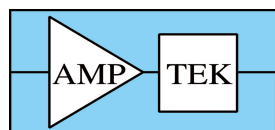


Joint ICTP-IAEA School on Novel Experimental Methodologies for Synchrotron Radiation Applications in Nano-science and Environmental Monitoring

Trieste, 17 - 28 November 2014

FINAL PROGRAMME




Co-sponsored by:



Joint ICTP-IAEA School on Novel Experimental Methodologies for Synchrotron Radiation Applications in Nano-science and Environmental Monitoring | (smr 2611)





Monday, 17 November 2014

10:00 - 18:00

- 10:00 **Registration** 1h30' (Leonardo Building - Lobby)
- 11:30 **Lunch Break** 2h30' ()
- 14:00 **Opening** 30'
Material:  **Slides**
- 14:30 **Introduction to Synchrotron radiation; evolution from undulator radiation to free electron lasing** 1h30'
Speaker: D. Attwood (Berkeley University - USA)
Material:  **Slides**
- 16:00 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)
- 16:30 **An introduction to X-ray Absorption Spectroscopy and EXAFS** 1h30'
Speaker: S. Pascarelli (ESRF, Grenoble - France)
Material:  **Slides**

Tuesday, 18 November 2014

09:00 - 18:00


- 09:00 **Introduction to X-ray optics and XSW formation; Coherence** 1h30'
Speaker: D. Attwood (Berkeley University - USA)
Material:  **Slides**
- 10:30 **Coffee break** 30' (Leonardo da Vinci Building Lobby)
- 11:00 **XAFS studies in Environmental and Material Sciences** 1h0'
Speaker: G. Aquilanti (Elettra-Sincrotrone Trieste)
Material:  **Slides**
- 12:00 **Lunch Break** 1h30' ()
- 13:30 **Introduction to the Quantitative XRF analysis** 1h30'
Speaker: A. Karydas (IAEA, Vienna - Austria)
Material:  **Slides**
- 15:00 **Practical Session** 30'
Speaker: B. Beckhoff (PTB, Berlin - Germany)
Material:  **Slides**
- 15:30 **Coffee Break** 30' (Adriatico Guest House)
- Two shuttles will be at participants' disposal to go from Leonardo Building to Adriatico GH. Departure at 15:40 (outside the LB Main Entrance). AGH is within walking distance. Please see map (under School's material) to know how to get there by foot.*
- 16:00 **Tutorial on XAFS data analysis** 2h0' (Adriatico Guest House Informatics Lab.)
Speaker: G. Aquilanti, C. Guglieri (Elettra-Sincrotrone Trieste)

19:00 - 21:00

Social Dinner
Location: AGH





Wednesday, 19 November 2014

09:00 - 18:00

- 09:00 **Introduction to Grazing Incidence XRF analysis** 1h30'
Speaker: G. Pepponi (Fondazione Bruno Kessler, Trento - Italy)
- 10:30 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)
- 11:00 **Reference free XRF and GIXRF analysis** 1h0'
Speaker: B. Beckhoff (PTB, Berlin - Germany)
Material: 
- 12:00 **Lunch Break** 1h30' ()
- 13:30 **X-ray Reflectometry: Principles and Analytical applications** 1h0'
Speaker: M. Tiwari (Raja Ramana Centre For Advanced Technology, Indore - India)
- 14:30 **Depth Profiling by GIXRF for Energy Conversion Materials** 1h0' (Leonardo da Vinci Building Euler Lecture Hall)
Speaker: C. Streeck (PTB, Berlin - Germany)
- 15:30 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)
- 16:00 **In operando XAS analysis of Li-ion and Li-sulphur batteries** 1h0'
Speaker: I. Arcon (University of Nova Gorica - Slovenia)
Material: 
- 17:00 **Tutorial on GIXRF data analysis** 1h0'
Speaker: B. Beckhoff (PTB, Berlin - Germany)


Thursday, 20 November 2014



09:00 - 18:00

- 09:00 **Soft X-ray microscopy combined with XRF and XANES Microspectroscopies for Environmental and Bio-Related Research** 1h30'
Speaker: A. Gianoncelli (Elettra-Sincrotrone Trieste)
- 10:30 **Coffee break** 30' (Leonardo da Vinci Building Lobby)
- 11:00 **Biomedical and environmental applications of SR-TXRF and SR-TXRF- XANES** 1h0'
Speaker: C. Strelj (Technische Universitaet Wien - Austria)
Material: 
- 12:00 **Lunch break** 1h30' ()
- 13:30 **Combined GIXRF-XRR analysis** 1h0'
Speaker: M. Tiwari (Raja Ramana Centre For Advanced Technology, Indore - India)
- 14:30 **Evaluation of XRF spectra: from basics to advanced systems** 1h0'
Speaker: P. Van Espen (University of Antwerpen - Belgium)
Material: 
- 15:30 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)
- 16:00 **Quantitative XRF analysis: algorithms and their practical use** 1h0'
Speaker: P. Van Espen (University of Antwerpen - Belgium)
Material: 
- 17:00 **Introduction to 3D Micro-XRF analysis and Analytical applications** 1h0'
Speaker: A. Karydas (IAEA - Austria)
Material: 

Friday, 21 November 2014

09:30 - 18:30

- 09:30 **TXRF analytical methodologies and sample preparation procedures for ultra-trace elements analysis** 1h0'
Speaker: N. Kallithrakas (Technical University of Crete - Greece)
Material: 
- 10:30 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)

- 11:00 **Studies of metal accumulation and ligand environment in plants by Synchrotron Radiation techniques** 1h0'
 Speaker: K. Vogel-Mikus (University of Ljubljana - Slovenia)
 Material: 
- 12:00 **Lunch Break** 1h30' ()
- 13:30 **Imaging techniques using Synchrotron radiation** 1h0'
 Speaker: G. Tromba (Elettra-Sincrotrone Trieste)
- 14:30 **Correlation of synchrotron radiation spectromicroscopy-based techniques: a tool in life science research** 1h30'
 Speaker: D. Eichert (Elettra-Sincrotrone Trieste)
- 16:00 **Coffee Break** 30' (Adriatico Guest House Informatics Lab.)
- Two shuttles will be at participants' disposal to go from Leonardo Building to Adriatico GH. Departure at 16:10 (outside the LB Main Entrance). AGH is within walking distance. Please see map (under School's material) to know how to get there by foot.*
- 16:30 **Tutorial on XRF Data Analysis** 2h0' (Adriatico Guest House Informatics Lab.)
 Speaker: P. Van Espen (University of Antwerpen - Belgium)
 Material: 

Sunday, 23 November 2014

13:45 - 18:00 Visit to Škocjan Caves Park (Slovenia)

Location:

13:45 **Trip to Škocjan Caves Park** 3h15'





*2:00 PM – Departure from bus-stop nearby Adriatico guesthouse.
 Please reach the bus-stand at least 15 minutes before departure for bus loading
 Arrival to Škocjan Caves Park is planned at 2:45.*

Guided tour starts at 3:00 PM

*5:00 PM – Return from Škocjan Caves Park
 Arrival to ICTP is planned for 6:00 PM*

Monday, 24 November 2014

09:00 - 17:00

- 09:00 **UHV experiments** 40'
 Speaker: L. Gregoratti (Elettra-Sincrotrone Trieste)
 Material: 
- 09:40 **UHV instrumentation and alignment strategies** 50'
 Speaker: J. Weser (PTB Berlin - Germany)
 Material: 
- 10:30 **Coffee Break** 30' (Leonardo da Vinci Building Lobby)
- 11:00 **Instrumentation of the end station at the Elettra XRF beamline** 1h0'
 Speaker: J. J. Leani (IAEA, Vienna - Austria)
- 12:00 **Lunch Break** 1h30' ()
- 13:30 **Multivariate methods for data analysis** 1h0'
 Speaker: H. J. Sanchez (IFEG-CONICET - Argentina)
 Material: 
- 14:30 **An introduction to Resonant Raman Scattering and Analytical applications** 1h0'
 Speaker: H. J. Sanchez (IFEG-CONICET - Argentina)
 Material: 
- 15:30 **Coffee Break** 30' (Adriatico Guest House)

Two shuttles will be at participants' disposal to go from Leonardo Building to Adriatico GH. Departure at 15:40 (outside the LB Main Entrance). AGH is within walking distance. Please see map (under School's material) to know how to get there by foot.


16:00 **Tutorial on GIXRF Software and Instrumentation 1h0'** (Adriatico Guest House Informatics Lab.)
Speaker: M. Tiwari (Raja Ramana Centre For Advanced Technology - India)


Tuesday, 25 November 2014


08:30 - 17:30 Hands-on activity at Elettra
Location: Elettra-Sincrotrone Trieste

08:30 **Transportation to Elettra 30'**

A bus will collect participants at 8:30 in front of the Adriatico Guest House. After introductory lectures chaired by Dr. Karydas and a visit to experimental halls participants will be divided into three groups. On Tuesday afternoon and Wednesday, these groups will attend, on a rotational basis, each of the three experimental sessions dedicated to XRF, TwinMic and XAFS.

09:00 **Storage ring in brief 35'**
Speaker: F. Iazzourene (Accelerator Group) (Elettra-Sincrotrone Trieste)
Material: 

09:35 **Synchrotron facilities radiation safety issues 35'**
Speaker: K. Casarin (Radiation Protection Group) (Elettra-Sincrotrone Trieste)
Material: 

10:10 **Beamline design and instrumentation 35'**
Speaker: A. Bianco (Mechanical, Vacuum and Optical Engineering Group) (Elettra-Sincrotrone Trieste)
Material: 

10:45 **Visit to Elettra/FERMI experimental halls 1h35'**

Participants might be divided in two groups for the visit to experimental halls

12:20 **Lunch break 1h40'**

14:00 **Experimental Session on XRF - Group 1 3h0'**
Speaker: J. J. Leani, A. Karydas, A. Migliori, J. Weser

14:00 **Experimental Session on TwinMic - Group 2 3h0'**
Speaker: A. Gianoncelli, M. Altissimo

14:00 **Experimental Session on XAFS - Group 3 3h0'**
Speaker: G. Aquilanti, C. Guglieri, L. Olivi

17:00 **Transportation to AGH 30'**

Wednesday, 26 November 2014

08:30 - 17:30 Hands-on Activity at Elettra
Location: Elettra - Sincrotrone Trieste

08:30 **Transportation to Elettra 30'** ()

09:00 **Experimental Session on XRF - Group 3 3h0'**
Speaker: J. J. Leani, A. Karydas, A. Migliori

09:00 **Experimental Session on TwinMic - Group 1 3h0'**
Speaker: A. Gianoncelli, M. Altissimo

09:00 **Experimental Session on XAFS - Group 2 3h0'**
Speaker: G. Aquilanti, C. Guglieri, L. Olivi

12:00 **Lunch break 2h0'**

14:00 **Experimental Session on XRF - Group 2 3h0'**
Speaker: J. J. Leani, A. Karydas, A. Migliori

14:00 **Experimental Session on TwinMic - Group 3 3h0'**
Speaker: A. Gianoncelli, M. Altissimo

14:00 **Experimental Session on XAFS - Group 1 3h0'**

Speaker: G. Aquilanti, C. Guglieri, L. Olivi

17:00 **Transportation to ICTP 30'** ()

Thursday, 27 November 2014

09:00 - 18:00

09:00 **Elemental analysis and chemical speciation of environmental particulate matter using synchrotron radiation 1h30'**

Speaker: J. Osan (Hungarian Academy of Science, Budapest - Hungary)

10:30 **Coffee Break 30'** (Leonardo da Vinci Building Lobby)

11:00 **An introduction to Monte Carlo Methods in XRF analysis 1h0'**

Speaker: T. Schoonjans (BAM, Berlin - Germany)

Material:  [Slides](#)

12:00 **Lunch Break 1h30'** ()

13:30 **Tutorial on Monte Carlo methods in XRF analysis 2h0'** (Adriatico Guest House Informatics Lab.)

Speaker: T. Schoonjans (BAM, Berlin - Germany)

Material:  [Slides](#)

15:30 **Coffee Break 30'** (Adriatico Guest House Informatics Lab.)

16:00 **Participants feedback session; sharing experience, questions from the practical sessions 2h0'** (Adriatico Guest House Informatics Lab.)

Friday, 28 November 2014

09:00 - 12:30

09:00 **Synchrotron radiation techniques for nanotoxicology and nanomedicine studies 1h30'**

Speaker: L. Pascolo (IRCCS Burlo Garofolo, Trieste)

10:30 **Coffee break 30'** (Leonardo da Vinci Building Lobby)

11:00 **Characterization of individual environmental microparticles using SR techniques 1h0'**

Speaker: J. Osan (Hungarian Academy of Science, Budapest - Hungary)

12:00 **Closure of the School 30'**

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