EXRS – 2018
European Conference on X-Ray Spectrometry
Ljubljana, Slovenia, 24–29 June 2018

CONFERENCE PROGRAM

https://exrs2018.ijs.si/

Organized by: Jožef Stefan Institute, Ljubljana, Slovenia

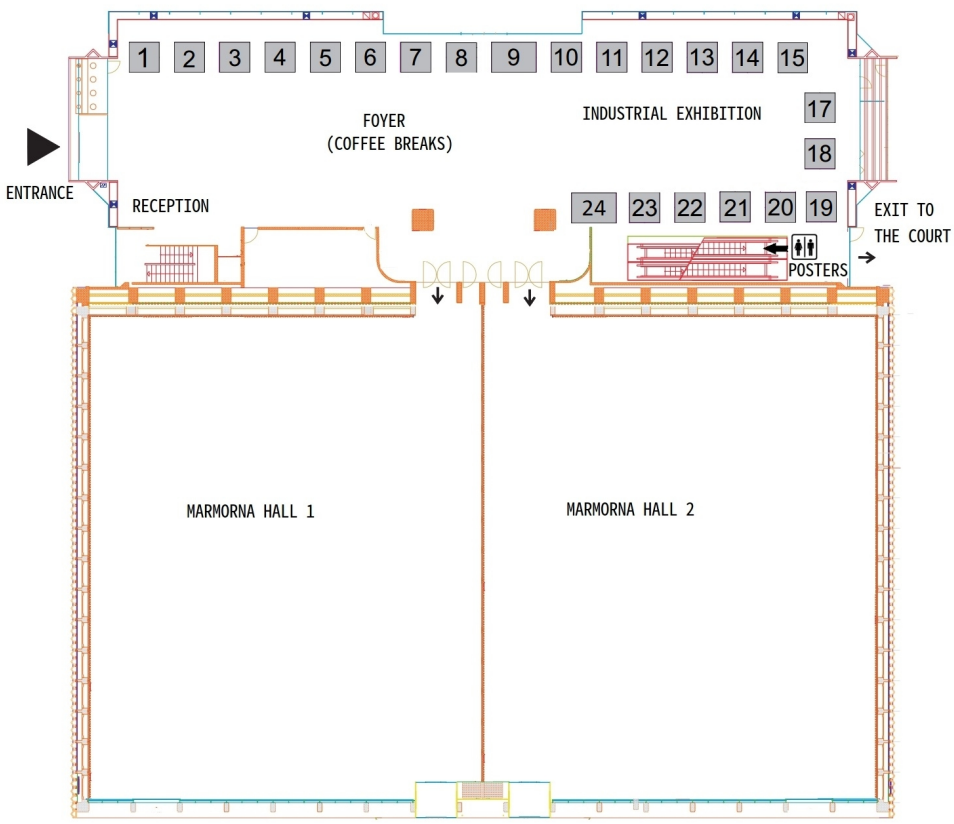
In collaboration with: Faculty for Mathematics and Physics, University of Ljubljana
Jožef Stefan International Postgraduate School
Society of Mathematicians, Physicists and Astronomers of Slovenia

2 Venue

Address:
Gospodarsko Razstavišče, Dunajska cesta 18, Ljubljana

Ljubljana Exhibition and Convention Centre is situated within a walking distance of many hotels. The nearest bus station is located right in front of the entrance. The station is called “Razstavišče” and is served by lines 6, 7, 8, 11, 12, 13, 14, 19 and 20.

The scientific programme will be held at the Marmorna hall and the industrial exhibition will be located in the foyer just outside the hall. Poster sessions will take place in the halls one level lower than Marmorna hall.



5 Program overview

Sunday 24. 6. 2018	18:00–21:00	Registration and welcome reception
Monday 25. 6. 2018	8:00–9:00	Registration
	9:00–9:30	Welcome address
	9:30–12:30	Scientific programme
	14:00–16:30	Scientific programme
	16:30–18:00	Poster session
	19:00	Town hall reception & Ljubljana sightseeing
Tuesday 26. 6. 2018	9:00–12:30	Scientific programme
	14:00–15:15	Scientific programme
	15:45–16:45	Industrial session
	16:45–18:00	Poster session
	20:00	Public lecture
Wednesday 27. 6. 2018	9:00–12:00	Scientific programme
	13:00	Excursion
Thursday 28. 6. 2018	9:00–12:30	Scientific programme
	14:00–15:15	Scientific programme
	15:45–16:30	Industrial session
	16:30–17:00	EXSA general assembly
	16:30–18:00	Poster session
	20:00	Conference dinner
Friday 29. 6. 2018	9:00–12:15	Scientific programme
	12:15	Closing ceremony

6 Invited lectures

W. B. Doriese, NIST Boulder, USA: High-efficiency X-ray-emission spectroscopy with arrays of transition-edge-sensor microcalorimeters

P. Glatzel, ESRF Grenoble, France: In-vacuum tender X-ray emission spectrometer with eleven cylindrically bent Johansson crystal analyzers

S. Huotari, University of Helsinki, Finland: X-ray Raman spectroscopy

Y. Kayser, PTB Berlin, Germany: Grazing X-ray fluorescence techniques applied to nanometer-scale characterization applications

F. Lucarelli, INFN Florence, Italy: 25 years of aerosol studies by PIXE and complementary techniques at LABEC

M. Manso, University of Lisbon, Portugal: Contribution of X-ray fluorescence spectrometry in graphical documents characterization

F. Salvat, University of Barcelona, Spain: Physics interaction models and applications of PENELOPE in XRS and EPMA

G. Seidler, University of Washington, USA: Benchtop Analytical XAFS and XES: Applications from Sulfur to Uranium

J. Szlachetko, Institute of Nuclear Physics PAN, Krakow, Poland: Off-resonant X-ray spectroscopy: from synchrotron to Xray Free Electron Laser science

P. Van Espen, University of Antwerp, Belgium: Evaluation of large x-ray spectral datasets from macro-scanning XRF

G. Vankó, Wigner Research Centre for Physics, Budapest, Hungary: X-ray spectroscopy at extreme low and high brilliance

K. Vogel-Mikuš, University of Ljubljana, Slovenia: X-ray spectrometry in plant biology

H. Yoneda, Institute for Laser Science & RIKEN Spring-8, Japan: New type of hard x-ray lasers pumped by X-FEL

8 Monday program

	Marmorna Hall 1	Marmorna Hall 2
9:00	Opening session Chairs: M. Kavčič, M. Žitnik	
9:30	Invited: **New type of hard x-ray lasers pumped by X-FEL** *H. Yoneda* (p. 21)	
10:00	Invited: **X-ray spectroscopy at extreme low and high brilliance** *G. Vankó* (p. 22)	
10:30	Coffee Break	
	Session I: INTERACTIONS OF X-RAYS WITH MATTER AND FUNDAMENTAL PARAMETERS Chair: M.-C. Lépy	Session II: MICROBEAM TECHNIQUES, CONFOCAL XRF AND X-RAY IMAGING Chair: K. Tsuji
11:00	**High valence metal center molecule creation with high intensity XFEL pulse** *W. Blachucki* (p. 24)	**Multimodal imaging of biological samples: correlation of μXRF with MALDI-MSI and with LA-ICP-MS** *A. Turyanskaya* (p. 36)
11:15	**Cascade Ge-L X-ray emission enhanced by Resonant Raman Scattering** *A. Karydas* (p. 25)	**High Speed Simultaneous XRD-XRF Mapping with the Color X-ray Camera** *J. Davis* (p. 37)
11:30	**Chemical state sensitivity of Cr $K^h\beta$ hypersatellite** *J. Hoszowska* (p. 26)	**Analytical X-ray Microscopy in the Soft Energy Range with Very Large Solid Angle of Detection** *B. Kanngießer* (p. 38)
11:45	**Theoretical Calculations of Atomic Fundamental Parameters for X-Ray Methodologies** *M. Guerra* (p. 27)	**Confocal Micro-X-ray Fluorescence Spectroscopy with a Metal Jet Source** *L. Bauer* (p. 39)
12:00	**Determination of the L-fluorescence yields of bismuth** *J. P. Santos* (p. 28)	**Elemental Analysis of Human Hair by Confocal Micro-XRF Analysis** *T. Furusato* (p. 40)
12:15	**X-ray cascades emitted in interaction of slow highly charged Xe ions with metallic foils** *M. Pajek* (p. 29)	**A Compact Vibration Compensating Set-up for Scanning nm-XRF and STXM** *B. Beckhoff* (p. 41)
12:30	Lunch Break	

⋮

⋮

	Chair: J. E. Fernández	Chair: J. Osán
14:00	Invited: **Off-resonant X-ray spectroscopy: from synchrotron to X-ray Free Electron Laser science** *J. Szlachetko* (p. 23)	
14:30	**Determination of fundamental parameter for the L-edges of gallium in GaSe with low uncertainties** *R. Unterumsberger* (p. 30)	**The ID21 beamline at ESRF: Sub-micron spectroscopy under cryo conditions for life and environmental sciences** *H. Castillo Michel* (p. 42)
14:45	**Monte Carlo simulation of an EDXRF setup with triaxial geometry: using Rayleigh to Compton ratio to evaluate the mean atomic number of unknown samples** *L. Martins* (p. 31)	**Laboratory confocal micro-XRF on cryo-fixated biological specimen** *F. Förste* (p. 43)
15:00	**Improved value of rhodium K fluorescence yield by direct measurement and using the decay scheme of ^{103m}Rh** *M.-C. Lépy* (p. 32)	**Elemental imaging of biological tissue in frozen hydrated state by micro-PIXE** *P. Vavpetič* (p. 44)
15:15	Coffee Break — sponsored by DECTRIS detecting the future	
	Session III: QUANTIFICATION METHODOLOGY AND METROLOGY – IN MEMORY OF PROF. H. EBEL Chair: C. Streli	Session IV: PIXE AND ELECTRON INDUCED XRS Chair: Ž. Šmit
15:45	**Developments of Quantitative software packages from RFA_WIN to ATI-Quant** *P. Wobrauschek* (p. 33)	**Ion micro-beam analyses of dust particles and co-deposits from JET with ITER-like wall** *S. Fazinić* (p. 45)
16:00	**Partial L-Shell Photoionization Cross Sections for fundamental parameter determination and XRS quantification models** *M. Kolbe* (p. 34)	**Study of complex samples using High Energy PIXE** *A. Subercaze* (p. 46)
16:15	**X-ray mass attenuation coefficients: a comparison of available tables and new measurements** *Y. Ménesguen* (p. 35)	**Qualitative study of Fe-Mn crust samples by High Resolution and High Energy PIXE** *M. Reis* (p. 47)
16:30	Fundamental Parameters Initiative	
⋮ 18:00	Poster Session I.	
19:00	Town hall reception & Ljubljana sightseeing	

8.1 Poster session I

8.1.1 Interactions of X-rays with matter and fundamental parameters

1 **X-ray nanophotonic development from simples to composite planar air waveguide-resonator**
Evgeny Egorov and Vladimir Egorov (p. 55)

2 **XMI-MSIM: a general Monte Carlo simulation of energy-dispersive X-ray fluorescence spectrometers**
Tom Schoonjans, Laszlo Vincze, V. Armando Solé and Claudio Ferrero (p. 56)

3 **The xraylib library for interactions of X-rays with matter**
Tom Schoonjans, Antonio Brunetti, Bruno Golosio, Manuel Sanchez Del Rio, V. Armando Solé, Claudio Ferrero and Laszlo Vincze (p. 57)

4 **Calculation of the X-Ray Absorption Coefficients for nMnHAp**
Oguz Kagan Koksal, Gökhan Apaydin, Ali Tozar, Fatih Ozkalayci, İsmail Hakkı Karahan and Erhan Cengiz (p. 58)

5 **Determination of Valance Electronic Structure of Cu and Zn in $Cu_{1-x}Zn_x$ alloy thin films by using Kβ-to-Kα X-ray Intensity Ratios**
Erhan Cengiz, Oğuz Kağan Köksal, İsmail Hakkı Karahan, Rasim Özdemir and Gökhan Apaydın (p. 59)

6 **X-ray Tube-based RIXS: Synchrotron-free Atomic Local Environment Determinations**
Juan José Leani, Roberto Daniel Perez, José Ignasio Robledo, Andreas Karydas and Héctor Jorge Sánchez (p. 60)

7 **Polycap: a Monte Carlo based ray tracing simulation of polycapillary optics**
Pieter Tack, Tom Schoonjans and Laszlo Vincze (p. 61)

8 **Reliable x-ray fundamental parameter determinations at PTB**
Philipp Hönicke, Michael Kolbe, Rainer Unterumsberger and Burkhard Beckhoff (p. 62)

9 **Monte Carlo simulation of electron tracks for assessment of dependence x-ray generation on size of inclusion**
Vasiliy Tatarinov (p. 63)

10 **High resolution X-ray spectroscopy of two-vacancy states in Ar**
Matjaz Zitnik, Matjaz Kavcic, Andrej Mihelic and Klemen Bucar (p. 64)

11 **M_i (i=1-5) sub-shell X-ray production cross sections at photon energies across the L_j (j=1-3) sub-shell absorption edges of $_{66}$Dy**
Rajnish Kaur, Anil Kumar, Mateusz Czyzycki, Alessandro Migliori, Andreas Karydas and Sanjiv Puri (p. 65)

12 **K-edge absorption spectra of gaseous hydrides**
Alojz Kodre, Robert Hauko, Jana Padežnik Gomilšek, Iztok Arčon and Giuliana Aquilanti (p. 66)

13 **New measurements of M$\alpha\beta$, Mγ and M-shell X-ray production cross sections induced by carbon ions on Pt and Bi targets**
Abderrahim
Haidra, Stjepko Fazinić, Souhila Ouziane, Ivana Zamboni and Dariusz Banaś (p. 67)

14 **Line shape study of L$\gamma_{2,3}$ and Lγ_4 transitions in barium metal and compounds**
Dimitrios Anagnostopoulos, Detlev Gotta, Lukas Huxold, Thomas Strauch and Christian Weidemann (p. 68)

15 **Measurement of the bremsstrahlung cross section for protons between 15 and 70 MeV in C and Al**
Ferid Haddad, Charbel Koumeir, Vincent Métivier, Flavien Ralite, Noel Servagent and Alexandre Subercaze (p. 69)

8.1.2 Microbeam techniques, confocal XRF and X-ray imaging

16 **Identification of free lime in slag using scanning electron microscope cathodoluminescence analysis**
Susumu Imashuku, Hiroki Tsuneda and Kazuaki Wagatsuma (p. 70)

17 **Experimental assessment of effective probed volume in confocal XRF spectrometryz using micro-particles**
Roman Padilla Alvarez, Patricia Poths, Ernesto Chinea-Cano, Naida Dzigal, Janos Osan and Iain Gerald Darby (p. 71)

18 **Calibration of a Laboratory Confocal Micro X-ray Fluorescence Setup for a Quantitative Analyses of Stratified Samples**
Radek Prokes and Tomas Trojek (p. 72)

19 **Micro-XRF analysis of zinc and lead accumulation in the tidemark of articular cartilage**
Mirjam Rauwolf, Anna Turyanskaya, Andreas Roschger, Ian Pape, Kawal Sawhney, Peter Wobrauschek, Paul Roschger, Jochen Hofstaetter and Christina Streli (p. 73)

20 **Soft X-ray STXM at the Swiss Light Source**
Katharina Witte, Peter A. Alpert, Simone Finizio, Benjamin Watts, Sebastian Wintz and Jörg Raabe (p. 74)

21 **Detection of Gadolinium accumulation in bone by XRF**
Anna Turyanskaya, Mirjam Rauwolf, Oliver Fox, Ian Pape, Kawal Sawhney, Tilman Gruenewald, Manfred Burghammer, Jochen Hofstaetter, Andreas Roschger, Paul Roschger, Peter Wobrauschek and Christina Streli (p. 75)

22 **Evaluation of the Effects of Azadirachtin on Internal Structures of Rhodnius prolixus Head Using Low-Energy X-Ray Microfluorescence**
Gabriela Souza, Regina Barroso, Liebert Nogueira, Delson Braz, George Kourousias, Diana Bedolla, Patricia Azambuja, Marcelo Gonzalez and Alessandra Gianoncelli (p. 76)

8.1.3 PIXE and electron induced XRS

34 **Standardization of Proton Induced X-Ray Emission for Analysis of Trace Elements**
Johar Zeb, Shad Ali and Jehan Akbar (p. 88)

35 **A PIXE Facility at the 2-MV Kist Tandem Ion Accelerator: Design and Simulations**
Sy Minh Tuan Hoang, Gwang Min Sun and Tran Hoai-Nam (p. 89)

36 **Ionic Exchange Resins as ^{14}C filters: SEM/EDXRS study**
Stefania Bruni, Alessandro Gessi, Giuseppe Marghella, Lorenzo Moretti, Antonietta Rizzo and Chiara Telloli (p. 90)

37 **Recent archaeometric investigation with PIXE-PIGE – selected problems from Iron Age**
Žiga Šmit (p. 91)

38 **An Assessment of the Atmospheric Impact of Construction Work on Fine Particulate Matter in The University of Jordan: A PIXE Study**
Hanan Sa'Adeh and Sara Aburugia (p. 92)

39 **PIXE analysis of barbarian imitations of Late Roman period coins**
Oleksandr Buhay, Volodymyr Bilyk, Kyrylo Myzgin, Aleksander Bursche and Ruslan Shulipa (p. 93)

40 **Monitoring of non-destructivity of PIXE analysis on cultural heritage objects**
Zoltán Szőkefalvi-Nagy, Imre Kovács, Bogdan Constantinescu and Daniela Cristea-Stan (p. 94)

41 **A TES probe for PIXE applications in the frame of the AHEAD Project**
Paolo Bastia, Vadim Burwitz, Massimo Chiari, Jan-Willem den Herder, Ioannis Georgantopoulos, Lorenzo Giuntini, Franco Lucarelli, Claudio Macculi, Diana Martella, Gabriele Minervini, Lorenzo Natalucci, Paul O'Brien, Luigi Piro, Laura Reginato, Monia Rossi, Salvatore Sciortino, José Miguel Torrejón and Peter von Ballmoos (p. 95)

42 **Five Year PIXE Study of Elemental Content in FAPM Collected in Seven Sites During Fireworks Burning Events**
Francisca Aldape, Javier Flores, Javier Flores-Aldape and Olivia Rivera-Hernandez (p. 96)

43 **Sulfur Contents in FAPM in Days with Relevant Events in Comparison with Normal Days in the MCMA**
Javier Flores, Francisca Aldape, Javier Flores-Aldape and Olivia Rivera-Hernandez (p. 97)

44 **Multiple ionization X-ray satellites of magnesium, aluminum and silicon in alpha particle PIXE**
Christopher M. Heirwegh, Marko Petric, Stjepko Fazinić, Matjaž Kavčič, Iva Božičević Mihalić, Jordan Schneider, Ivana Zamboni and John L. Campbell (p. 98)

45 **Use of micro-beam PIXE and NRA in postmortem analysis of samples exposed in plasma devices**

8.1.4 Quantification methodology and metrology

57 **EDX calibration using polynomial fitting over the X-Ray production factors of thin elemental standards**
Americo Kerr and Thiago Verissimo (p. 111)

8.1.5 XRS applications in advanced materials and nanoscience

58 **FRX, electronic microscopy and micro-computed tomography characterization of silver-infused gel dosimeters**
Mauro Valente, J. Vedelago, Facundo Mattea, Mauricio Santibáñez, Rodolfo Figueroa and Pedro Pérez (p. 112)

59 **Mapping of SiO_2 nanoparticles in A549 and Macrophages cells**
Giacomo Ceccone, Jessica Ponti, Iria Rio Echevarria, Alessia Bogni, Douglas Gilliland, Alessandra Gianoncelli and Lorella Pascolo (p. 113)

60 **Influence of bimodal and metallocene linear low-density polyethylenes on crystallinity of compositions**
Ilgiz Imanaev and Regina Spiridonova (p. 114)

9 Tuesday program

	Marmorna Hall 1	Marmorna Hall 2
	Chair: B. Beckhoff	
9:00	Invited: **In-vacuum tender X-ray emission spectrometer with eleven cylindrically bent Johansson crystal analyzers** *P. Glatzel* (p. 119)	
9:30	Invited: **High-efficiency X-ray-emission spectroscopy with arrays of transition-edge-sensor microcalorimeters** *W. B. Doriese* (p. 120)	
	Session III (cont.): QUANTIFICATION METHODOLOGY AND METROLOGY Chair: B. Beckhoff	Session V: XRS INSTRUMENTATION I. (X-RAY SOURCES, OPTICS AND DETECTORS) Chair: B. Kanngießer
10:00	**Quantitative determination of the surface of silicon spheres for the redefinition and realisation of the SI unit kilogram** *M. Müller* (p. 122)	**Optical pump soft X-ray probe NEXAFS spectroscopy using a laser-produced plasma source** *A. Jonas* (p. 133)
10:15	**A modified fundamental parameter method dedicated to EDXRF setups** *J. Heckel* (p. 123)	**A Diced von Hamos Spectrometer for Time Resolved X-ray Emission Spectroscopy** *S. Jensen* (p. 134)
10:30	Coffee Break & Conference Photo	
11:00	**Parametrization of a tabletop micro-XRF system** *Ž. Šmit* (p. 124)	**A compact and efficient von Hamos spectrometer based on two full-cylindrical HAPG mosaic crystals for high-resolution XES** *M. Wansleben* (p. 135)
11:15	**Polarization Measurement of Compton Scattered X-rays by 3D-Printed Polarimeter** *R. Tanaka* (p. 125)	**Laboratory von Hámos X-ray Spectroscopy for Routine Sample Characterization in Solution Phase** *Z. Németh* (p. 136)
11:30	**Full Recovering of an X-ray Spectrum from Detector Influence** *J. Fernández* (p. 126)	**Imaging and spectroscopy with X-rays from Carbon to Uranium K lines** *L. Strüder* (p. 137)

⋮

⋮

11:45	**A Methodology to Obtain Traceability and Validation of Calibration Samples for Thin Metal Alloy Layers for X-Ray Fluorescence Tools** *A. Nutsch* (p. 127)	**Laboratory-based Cu L X-ray fluorescence spectroscopy** *S. Staeck* (p. 138)
12:00	**In-line characterization of ultrathin MoS 2 and WS 2 materials using XRF-XPS strategies** *E. Nolot* (p. 128)	**Low-E extension of a hand-held Compton spectrometer** *I. Gerardy* (p. 139)
12:15	**Comparison of different quantification approaches in X-ray fluorescence imaging of freeze-dried tissue samples** *P. Wróbel* (p. 129)	**Catalysis research with a laboratory based XAFS spectrometer** *W. Malzer* (p. 140)
12:30	Lunch Break	
	Chair: R. Padilla-Alvarez	Chair: S. Fazinić
14:00	Invited: **Benchtop Analytical XAFS and XES: Applications from Sulfur to Uranium** *G. Seidler* (p. 121)	
14:30	**Absolute high-precision measurements of x-ray transitions with a double crystal spectrometer** *J. Machado* (p. 130)	**Pulse Processing for Practical X-ray Microcalorimetry** *T. Jach* (p. 141)
14:45	**Validation of secondary fluorescence algorithms for thin layered samples using synchrotron radiation based experiments** *A. Wählisch* (p. 131)	**Enhancing CCD Capabilities by Single Photon Counting: A Comparison of Photon Event Evaluation Algorithms** *J. Baumann* (p. 142)
15:00	**Online measurement of deposited energy by ion beams using bremsstrahlung X-rays** *F. Ralite* (p. 132)	**Advanced Pulse Processing Techniques for Photon Science and Other High Rate Applications** *P. Scoullar* (p. 143)
15:15	Coffee Break	

⋮

⋮	
	Industrial session I. Chair: J. Boman
15:45	**Company and Product Profile – PNDetector GmbH** *J. M. Davis, PNDetector GmbH* (p. 145)
16:00	**An Improved Performance of the Vortex Silicon Drift Detector** *S. Barkan, Hitachi High-Technologies* (p. 146)
16:15	**Improving Detectors for X-Ray Spectroscopy** *R. Redus, Amptek inc.* (p. 147)
16:30	**Bruker XRF, complete and innovative portfolio of portable, benchtop, and floorstanding instruments** *C. Vailati, Bruker Nano GmbH* (p. 148)
16:45 ⋮ 18:00	Poster Session II.
20:00	Public Lecture

9.2 Poster session II

9.2.1 XRS instrumentation

1 **Advanced SDD to Address Different Applications Simultaneously**
Shaul Barkan, Yen-Nai Wang, Mengyao Zhang, Eugene Tikhomorov, Elena Damron and Valeri Saveliev (p. 155)

2 **Development of a primary X-ray filter for XRF analysis of uranium and plutonium**
Kota Ishii, Tsugufumi Matsuyama, Yukie Izumoto, Yasuhiro Sakai, Yoshiyuki Oguri and Hiroshi Yoshii (p. 156)

3 **Spatial resolution properties of krypton-based mixtures using a 100 μm thick Gas Electron Multiplier**
Rita Roque, Hugo Natal Da Luz, Lara Carramate, Carlos Azevedo, Jamil Mir and Fernando Amaro (p. 157)

4 **Low power, low noise, JFETs for room temperature x-ray detectors**
Leonhard Sturm, Lars Nebrich, Ignaz Eisele and Christoph Kutter (p. 158)

5 **Improved XRF Detector System for High Resolution Spectroscopy in Ambient Conditions**
Hartmut Schmidt, Heike Soltau, Adrian Niculae, Andreas Liebel, Robert Lackner, Daniel Steigenhöfer, Moritz Kopetzki and Bechir Talbi (p. 159)

6 **In-house X-ray absorption and X-ray emission spectroscopy with double von Hamos spectrometer**
Wojciech Błachucki, Joanna Czapla-Masztafiak, Jakub Szlachetko and Jacinto Sa (p. 160)

7 **Enhanced cooling technologies for Silicon Drift Detectors at very high count rate**
Mathieu Morelle, Jonas Douwen, Simon Benichou, Cédric Cohen and Menyhert Kocsis (p. 161)

8 **Proportional counter filled with fine powder aerosol**
Nuno Duarte (p. 162)

9 **Towards on-the-fly X-ray Fluorescence mapping in the soft X-ray regime**
Luca Bombelli, Michele Manotti, Matteo Altissimo, George Kourousias, Roberto Alberti and Alessandra Gianoncelli (p. 163)

10 **How many Fano factors should characterize an X-rays scintillation spectrometer?**
Victor Samedov (p. 164)

11 **Performance Evaluation of a 50 mm^2 Silicon Drift Detector for TXRF Trace Metal Analysis**
Cheri Anne Dingle, Neil Raymund Guillermo and Pablo Saligan (p. 165)

12 **Frontiers in Attosecond X-ray Science: Imaging and Spectroscopy**
Victoria Mazalova, Petra Fromme and Franz Kärtner (p. 166)

13 **Digital Pulse Processing for X-Ray Spectrometry with a single board computer/laboratory measuring instrument**
Riccardo Campana, Evgeny Demenev and Giancarlo Pepponi (p. 167)

14 **Development and performance test of X-ray Source for industrial Benchtop & Handheld XRF**
Jeongdong Kim, Sanghyo Kim, DonghoonLee (p. 168)

15 **Characterization of a triple-GEM position sensitive detector for X-ray fluorescence imaging**
Geovane Souza and Hugo Da Luz (p. 169)

9.2.2 Synchrotron XRS, XAFS, high resolution XES, and RIXS

16 **The U-induced changes in crystal-field and covalency effects of Th^{4+} in $Th_{1-x}U_xO_2$ mixed oxides probed by HERFD-XANES**
Yuying Huang (p. 170)

17 **Cu Nanoparticles: Structural Effects Determined By Supports**
Antonella Balerna and Claudio Evangelisti (p. 171)

18 **Potential Environmental Applications by Medium Energy Micro-probe Beamline Proposed in SSRF Phase-II Project**
Lina Li (p. 172)

19 **XAS studies of Sn modified TiO_2 coatings**
Ksenija Maver, Iztok Arčon and Urška Lavrenčič Štangar (p. 173)

20 **SR XRF in identification of elements in milligrams amounts of humic acids**
Valentina Trunova, Maria Dergacheva and Dmitrii Sorokoletov (p. 174)

21 **Chemical speciation of sulfur in lithium polysulfides via Core-to-Core and Valence-to-Core XES**
Marko Petric, Matjaž Kavčič and Alen Vizintin (p. 175)

22 **Nickel coordination in hyperaccumulator plants studied by XANES and EXAFS**
Jana Padežnik Gomilšek, Katarina Vogel-Mikuš, Alojz Kodre and Iztok Arcon (p. 176)

23 **Sample Topography from Synchrotron XRF and STXM for the examination of Diatom Microalgae**
George Kourousias, Fulvio Billè, Maya Kiskinova and Alessandra Gianoncelli (p. 177)

24 **Uptake and translocation of silver nanoparticles in Lactuca sativa: accumulation and ligand environment studies**
Laura Torrent, Mònica Iglesias, Eva Marguí, Katarina Vogel-Mikuš, Alojz Kodre, Anja Kavčič and Manuela Hidalgo (p. 178)

25 **2D-Maps of Cu Paintings by Resonant Inelastic X-ray Scattering (RIXS) with Multivariate Methods**
Héctor Sánchez, Jose I. Robledo and Juan José Leani (p. 179)

26 **Experimental Methodology for Retrieving Chemical State Information from L lines by Resonant Inelastic X-Ray Scattering**
Jose I. Robledo, Juan José Leani and Héctor Sánchez (p. 180)

27 **Preliminary characterization of organic dyes towards NEXAFS experiments using a laser-produced plasma source**
Lisa Glöggler, Adrian Jonas, Birgit Kanngießer, Ioanna Mantouvalou and Holger Stiel (p. 181)

28 **Synchrotron radiation total reflection X-ray fluorescence (SR-TXRF) and X-ray absorption near edge structure (XANES) of ovarian cyst fluid.**
Maria M. Grzelak, Paweł M. Wróbel, Marek Lankosz, Beata Ostachowicz, Łukasz Chmura, Dariusz Adamek and Robert Jach (p. 182)

29 **X-ray Raman scattering as a novel probe to discriminate carbon-based compounds in ancient art and fossil materials**
Rafaella Georgiou, Pierre Gueriau, Jean-Pascal Rueff, Uwe Bergmann, Nathan Daly and Loic Bertrand (p. 183)

30 **RXES experiments using stochastic data from non-monochromatized XFEL SASE radiation**
Yves Kayser, Chris Milne, Pavle Juranic, Leonardo Sala, Joanna Czapla-Masztafiak, Rolf Follath, Matjaž Kavčič, Gregor Knopp, Jens Rehanek, Diling Zhu, Roberto Alonso-Mori, Rafael Abela, Jacinto Sá and Jakub Szlachetko (p. 184)

31 **Iron accumulation in the aging retina: a synchrotron μ-XRF study**
Kalotina Geraki, Glen Jeffery and Marta Ugarte (p. 185)

32 **ESUO: The European Synchrotron and FEL User Organisation: Aims & Activities**
Iztok Arčon, Pervin Arikan, Carla Bittencourt, Federico Boscherini, Francisco M. Braz Fernandes, Nick Brooks, Maja Buljan, Benedetta Casu, Marie D'Angelo, Matteo D'Astuto, Martin Feiters, Annick Froideval, Silvia Gross, Christian Gutt, Thomas Hase, Simo Huotari, Krystyna Jablonska, Matej Jergel, Tommi Kajander, Amir Khan, Marco Kirm, Mike Kokkinidis, László Kövér, Doriano Lamba, Helge Larsen, Rainer Lechner, Derek Logan, Olga López, Kirsi Lorentz, Jan Luning, Carlo Mariani, Bratislav Marinkovic, Cormac McGuinness, Martin Meedom Nielsen, Sigitas Mickevicius, Petr Mikulík, Andrei Petukhov, Ullrich Pietsch, Boaz Pokroy, Juris Purans, Louis Renault, Gonzalo Santoro, Boris Shivachev, Moniek Tromp, György A. Vankó, Cecilia Blasetti, Alicja Górkiewicz, Mandy Grobosch, Manfred Helm, Barbara Schramm, Beatrix Kamelia Seidlhofer, Mirjam van Daalen and Antje Vollmer (p. 186)

33 **Magnesium-sulfur batteries studied by in-operando S K-edge RIXS and XAS spectroscopy**
Ana Robba, Alen Vizintin, Jan Bitenc, Iztok Arčon, Matjaž Kavčič, Matjaž Žitnik, Klemen Bučar and Robert Dominko (p. 188)

9.2.3 XRS applications in Art and Cultural Heritage

34 **GILDED COPPER AND TUMBAGA BY THE MOCHE: A TEST OF THE INTERNAL RATIO METHOD**
Roberto Cesareo (p. 189)

35 **STUDIES ON THE FAMOUS MOCHE "CABEZA DE MONO DORADA"**
Roberto Cesareo and Angel Bustamante (p. 190)

36 **PORTABLE EDXRF-SCANNER FOR MAPPING ANCIENT GOLD AND SILVER ALLOYS**
Roberto Cesareo, Giovanni Gigante, Stefano Ridolfi and Ricardo Lopes (p. 191)

37 **Spectroscopic analysis of polychromatic sculptures belong to the cultural heritage of Extremadura (Spain).**
Maria J. Nuevo, Alejandro Martín Sánchez and Miguel Angel Ojeda (p. 192)

38 **SEM/EDAX and optical microscopy study of an ancient cloth**
Stefania Bruni, Carmela Maria Cellamare, Alessandro Gessi, Giuseppe Marghella and Loredana Stante (p. 193)

39 **Use of Spectral Angle Mapper to extent macro-XRF results: first application on a Giotto's masterpiece**
Anna Galli, Letizia Bonizzoni, Michele Caccia, Roberto Alberti, N. Aresi and Marco Martini (p. 194)

40 **The vignetting effects in full-field X-ray fluorescence imaging system based on pinhole optics and gaseous detector**
Pawel Wrobel, Tomasz Fiutowski, Piotr Fraczek, Stefan Koperny, Marek Lankosz, Bartlomiej Lach, Agata Mendys, Bartosz Mindur, Krzysztof Swientek, Piotr Wiacek and Wladyslaw Dabrowski (p. 195)

41 **Technological examination of Renaissance ceiling in The Great Council Room of Gdańsk City Hall using various X-ray techniques**
Anna Klimek, Agata Mendys, Anna Klisińska-Kopacz, Piotr Frączek and Michał Obarzanowski (p. 196)

42 **Analysis of metallic objects from tomb of the 'Lady of Cao' by X-ray microtomagraphy and digital radiography**
Soraia Azeredo, Roberto Cesareo, Franco Jordan, Giovanni Gigante, Arabel Fernandez, Angel Bustamante, Artur Vilar and Ricardo Lopes (p. 197)

43 **The full-field X-ray fluorescence imaging combined with the multivariate data analysis for the painting layers investigations**
Agata Mendys, Tomasz Fiutowski, Piotr Frączek, Stefan Koperny, Marek Lankosz, Bartłomiej Łach, Bartosz Mindur, Krzysztof Świentek, Piotr Wiącek, Paweł M. Wróbel and Władysław Dąbrowski (p. 198)

44 **Textile metal analysis of the first Brazilian emperors' vestments**
Marcia De Almeida Rizzutto, Pedro H. O. Viviani de Campos, Jessica F. Curado, Elizabeth A. M. Kajiya and Valdirene C. Ambiel (p. 199)

45 **The use of handheld XRF supplemented with LA-QICP-MS in the analysis of composite silver artefacts – the case study of the late Roman Seuso Treasure**
Viktória Mozgai, Bernadett Bajnóczi, Zoltán May, Ernst Pernicka, István Fórizs, Zsolt Mráv, Marianna Dági and Mária Tóth (p. 200)

46 **Multi-analytical X-ray study of a pop art secco**
Máté Szabó, Viktória Beatrix Mátyás, Viktória Mozgai, István Bóna, Dóra Kesjár, Bianka Farkas, Laura Judit Hallai, Alíz Ráhel Pintea, Brigitta Mária Kürtösi, Bernadett Bajnóczi and Mária Tóth (p. 201)

47 **pXRF analysis and MA-XRF imaging of Mycenean Wall-Painting pigments from the Nestor's Palace at Pylos**
Eleni Kokiasmenou, Claudia Caliri, Vasiliki Kantarelou, Dimitra Papadopoulou, Maria Kontimpa, Andreas Karydas, Francesco Paolo Romano and Hariclia Brecoulaki (p. 202)

48 **Development of a multiwavelength XRD combined with EDXRF for cultural heritage in-situ analysis**
Hellen C. Santos, Renan F. Assis, Pedro H.O.V. Campos, Alisson R. Leite, Marcia A. Rizzutto, Tiago F. Silva and Manfredo H. Tabacniks (p. 203)

49 **Determination of gold leaf thickness using X- Ray Fluorescence and Monte Carlo simulation**
Sofia Pessanha, Luisa Carvalho and Jorge Sampaio (p. 204)

50 **Application of multianalytical technique for the characterisation of materials on the glaze colour layer**
Radka Sefcu, Václav Pitthard, Daniel Vavřík, Ivana Kumpová and Štěpánka Chlumská (p. 205)

51 **Analysis of coins recoined for "960 RÉIS" by XRF and SEM-EDS**
Valter Felix, Marcelo Pereira, Renato Freitas, Paula Aranha, Pedro Henrique and Ricardo Lopes (p. 206)

52 **Application of the X-Ray Fluorescence Analysis to determine the composition of samples and to the detection of metals in cultural assets**
Gonzalo Farga, Alfonso Tudela, José Ródenas and Belén Juste (p. 207)

53 **Analysis of copper corrosion in binary bronze alloys by XANES and complementary spectroscopic methods**
Domagoj Šatović, Vladan Desnica, Stjepko Fazinić, Maja Buljan, Iva Božičević Mihalić, Giuliana Aquilanti and Simone Pollastri (p. 208)

54 **Comparative study of illuminated Moroccan paper manuscripts from the eighteenth century: non-invasive analysis by X-ray Diffraction (XRD) and Energy Dispersive X-ray Fluorescence (EDXRF)**
Ghizlane Idrissi Serhrouchni, Mohammed Talbi, M'hammed El Kouali, Marta Manso, Sofia Pessanha, Maria Luísa Carvalho and Latifa Hajji (p. 209)

55 **Usefulness of a dual macro and micro energy dispersive X-Ray fluorescence spectrometer to develop quantitative methodologies for historic mortars and related materials characterization**
Cristina Garcia-Florentino, Maite Maguregui, Miriam Romera, Ignasi Queralt, Eva Margui and Juan Manuel Madariaga (p. 210)

56 **Application of XRF spectroscopy to study differentiation between fragments of potteries found in a same archaeological site in Algeria**
Lynda Idjouadiene, Toufik Amayas Mostefaoui and Letizia Bonizzoni (p. 211)

9.2.4 Mobile and portable XRF

57 **Analytical characterization of 3D macro confocal X-ray fluorescence spectrometer**
Imre Szalóki, Gábor Radócz and Anita Gerényi (p. 212)

58 **Rare Earth Analysis by 3D-Printed XRF**
Bolortuya Damdinsuren, Ryohei Tanaka and Jun Kawai (p. 213)

59 **Quantitative Analysis of Portable Polarized XRF**
Bolortuya Damdinsuren, Ryohei Tanaka and Jun Kawai (p. 214)

60 **Performance assessment of portable XRF for measuring K and Rb in lithiniferous rocks**
Diana Guimarães, Miguel F. S. Ferreira, Rui C. Martins, Pedro Jorge and Alexandre Lima (p. 215)

61 **Study of Glass Reinforced Polyester Sculptures by Handheld XRF Spectrometer**
Vítězslav Knotek (p. 216)

10 Wednesday program

	Marmorna Hall 1	Marmorna Hall 2
	Chair: A. Karydas	
9:00	Invited: **X-ray Raman spectroscopy** *S. Huotari* (p. 219)	
9:30	Invited: **Evaluation of large x-ray spectral datasets from macro-scanning XRF** *P. Van Espen* (p. 220)	
	Session VI: SYNCHROTRON XRS, XAFS, HIGH RESOLUTION XES, AND RIXS Chair: A. Karydas	Session VII: XRS APPLICATIONS IN ART AND CULTURAL HERITAGE Chair: R. Cesareo
10:00	**XAS and RIXS spectroscopy of methanol** *F. Gelmukhanov* (p. 221)	**Reflection and Transmission mode MA-XRPD imaging: a comparison** *K. Janssens* (p. 227)
10:15	**Unveiling bonding schemes of nickel atoms at a Ni-MoS_2 metallic contact via microregional XAS** *W. Cao* (p. 222)	**A mobile Multi-Technique X-Ray scanner for a Real-time 2D and 3D Elemental Imaging of Artworks** *F. P. Romano* (p. 228)
10:30	Coffee Break	
11:00	**Operando XAS analysis of CuO/SiO_2 and CuO/CeO_2 catalysts** *I. Arčon* (p. 223)	**Study of two large dimension Murillo's paintings by means of Macro X-ray fluorescence (MA-XRF) imaging, point XRF analysis and stratigraphic studies** *A. Križnar* (p. 229)
11:15	**XAFS@BAMline: More than just Absorption** *S. Witte* (p. 224)	**Advantages and disadvantages XRF when applied to the investigation of cultural heritage objects** *A. Klisińska-Kopacz* (p. 230)
11:30	**X-ray fluorescence spectrometry beamline at Elettra Sincrotrone Trieste** *M. Czyzycki* (p. 225)	**Real-Time MAXRF Imaging of Egyptian Painted Wooden Coffers from the Tomb of Kha and Merit (1400 BC) at the Egyptian Museum in Torino** *C. Caliri* (p. 231)
11:45	**Characterization of titanium oxide nanoparticles in sludge from wastewater treatment plants from Mexico** *J. Reyes-Herrera* (p. 226)	**The Barberini harp: diagnostic investigations** *G. Marghella* (p. 232)
12:00	Lunch Break	
13:00	Conference Excursion	

11 Thursday program

	Marmorna Hall 1	Marmorna Hall 2
	Chair: P. Wobrauschek	
9:00	EXSA's Young Scientist Award 2018 ceremony	
9:10	Invited: **Grazing X-ray fluorescence techniques applied to nanometer-scale characterization applications** *Y. Kayser* (p. 237)	
9:40	Invited: **X-ray spectrometry in plant biology** *K. Vogel-Mikuš* (p. 238)	
	Session VIII: TXRF, GIXRF AND RELATED TECHNIQUES Chair: P. Wobrauschek	Session IX: XRS APPLICATIONS IN LIFE SCIENCES Chair: L. Carvalho
10:10	**Possibilities and drawbacks of EDXRF and TXRF for the determination of metallic traces in barite samples** *E. Marguí* (p. 240)	**Toxicity effects of SW-CNTS and crocidolite in human placental cells (BeWo) investigated by XRF microscopy** *A. Gianoncelli* (p. 251)
10:25	**Quantification of layers and implants using GIXRF in combination with TXRF standards** *D. Ingerle* (p. 241)	**Analysis of metal anti-cancer complexes and their interaction with DNA by means of X-ray spectroscopy** *J. Czapla-Masztafiak* (p. 252)
10:40	Coffee Break	
11:00	**Dual Energy Band Excitation for High Z and Low Z Elements by one Multilayer as Spectral Modifier** *J. Prost* (p. 242)	**A calibration procedure for a traceable contamination analysis on medical devices by combined X-ray spectrometry and ambient spectroscopic techniques** *B. Pollakowski-Herrmann* (p. 253)
11:15	**In-depth and dimensional characterization of nanolayers and 3-dimensional nanostructures using reference-free GIXRF-XRR** *P. Hönicke* (p. 243)	**The role of in vivo x-ray fluorescence in exploring a Strontium-health hypothesis** *D. Chettle* (p. 254)

⋮

⋮

11:30	**Angle-resolved X-ray fluorescence spectroscopy in the laboratory** *I. Mantouvalou* (p. 244)	**Evidences of hepatic Gd retention and iron overload in pediatric oncologic patients revealed by a combination of micro-PIXE, LA-ICPMS and XRF** *L. Pascolo* (p. 255)
11:45	**TXRF, Chemometrics and Biology** *D. Eichert* (p. 245)	**Silver sub-cellular distribution and its impact on Hepatocyte functions revealed by nano-XRF microscopy** *V. Tardillo Suárez* (p. 256)
12:00	**Critical evaluation of the use of TXRF for the analysis of whole blood samples: Application to patients with thyroid gland diseases** *J. Jablan* (p. 246)	**Soft X-ray radiation damage on biological samples investigated with X-ray and FTIR microscopies** *D. Bedolla* (p. 257)
12:15	**One, two, three or four —- How many dimensions are there in the X-ray world?** *M. Krämer* (p. 247)	**Taking advantage of Compton-to-Rayleigh ratio in EDXRF spectra to recognize hydroxyapatite-based materials** *S. Pessanha* (p. 258)
12:30	Lunch Break	
	Chair: G. Pepponi	Chair: I. Arčon
14:00	Invited: **Physics interaction models and applications of PENELOPE in XRS and EPMA** *F. Salvat* (p. 239)	
14:30	**New Sample Carrier Modified with Low-Z Material Layer for TXRF Analysis** *K. Tsuji* (p. 248)	**Cadmium localization and chemical environment in a cadmium bioindicator Gomphrena claussenii** *P. Pongrac* (p. 259)
14:45	**TXRF analysis of uranium in acid elution solution model of soil** *H. Yoshii* (p. 249)	**Uptake, accumulation and translocation of metal and metalloid elements in plant seeds by μ-XRF and XANES** *L. Luo* (p. 260)
15:00	**Effect of the slag particle size in heavy elements releasing** *A. Riboldi* (p. 250)	**Combination of elemental and isotopic fingerprinting in food authenticity studies** *M. Nečemer* (p. 261)
15:15	Coffee Break	

⋮

⋮	
	Industrial session II. Chair: R. Tanaka
15:45	**High Performance Silicon Drift Detectors** *A. Pahlke, KETEK GmbH* (p. 263)
16:00	**Polycapillary X-ray Optics- The Driving Force of Advanced μXRF Analysis** *J. Sachs, XOS* (p. 264)
16:15	**Moxtek's Developments in Compact X-Ray Sources** *K. Kozaczek, Moxtek Inc.* (p. 265)
16:30	EXSA general assembly
⋮	
⋮ 18:00	Poster Session III.
20:00	Conference dinner

11.2 Poster session III

11.2.1 TXRF, GIXRF and related techniques

1 **Ultra trace Determination of Uranium in Water Samples by Total Reflection X-ray Fluorescence Spectrometry**
Vikas Kumar Shukla, Sangita Dhara, Kaushik Sanyal and Nand Lal Misra (p. 273)

2 **Possibility of Elemental Determinations in Plutonium Samples by Total Reflection X-ray Fluorescence Spectrometry**
Sangita Dhara, Kaushik Sanyal and Nand Lal Misra (p. 274)

3 **Challenges of the pharmaceutical industry: TXRF analysis of catalyst and nutrient elements**
Sophia Tessaro, Annika Groß and Armin Gross (p. 275)

4 **The effect of freeze-thaw cycle on cerebrospinal fluid using multielemental quantification with TXRF**
Gabriella Mankovskii, Horatiu Bob and Ana Pejovic-Milic (p. 276)

5 **Total reflection X-ray fluorescence analysis of uranium in immersion liquid of demolition waste using benchtop-type device**
Tsugufumi Matsuyama, Yukie Izumoto, Kota Ishii, Yasuhiro Sakai and Hiroshi Yoshii (p. 277)

6 **Determination of trace amounts of gold in aqueous samples by ligandless surfractant assisted emulsification microextraction and TXRF analysis**
Zekeriyya Bahadir and Eva Margui (p. 278)

7 **3D-printed TXRF**
Ryohei Tanaka, Daichi Yamamoto, Mao Tsutsumi and Jun Kawai (p. 279)

8 **GIXRF-based elemental analysis of sequentially infiltrated Al_2O_3 in self-assembled block copolymer films.**
Eleonora Cara, Federico Ferrarese Lupi, Philipp Hönicke, Yves Kayser, Burkhard Beckhoff, Natascia De Leo and Luca Boarino (p. 280)

9 **Total Reflection X ray Fluorescence of Lithium Ion Battery Electrolytes from Field Tested Electric Vehicles**
Marco Evertz, Yannick Philipp Stenzel, Fabian Horsthemke, Martin Winter and Sascha Nowak (p. 281)

10 **Total-Reflection X-Ray Fluorescence Analysis (TXRF) of Airborne Particulate Matter at Atominstitut – Overview of Recent Activities**
Josef Prost, Peter Kregsamer, Peter Wobrauschek and Christina Streli (p. 282)

11 **Using a portable total reflection X-ray fluorescence system for a multielement analysis of swiss mice brains with experimental Alzheimer's disease induced by AβOs**
Danielle Santos de Almeida, Matheus de Melo Brigido, Marcelino José Dos Anjos, Sergio Teixeira Ferreira, Amanda Santos Souza and Ricardo Tadeu Lopes (p. 283)

12 **Sample preparation for TXRF analysis of ovarian cyst fluids.**
Maria M. Grzelak, Paweł M. Wróbel, Marek Lankosz, Beata Ostachowicz, Katarzyna Pyzik, Łukasz Chmura, Dariusz Adamek and Robert Jach (p. 284)

13 **Hollow Fiber Liquid Phase Microextraction (HF-LPME) combined with Total Reflection X-ray Spectrometry (TXRF) for the determination of trace level inorganic arsenic species in waters**
Santanu Majumder, Eva Marguí, Gabriela Roman-Ross, Debashis Chatterjee and Manuela Hidalgo (p. 285)

14 **Trace determination of uranium preconcentrated using graphene oxide by total reflection X-ray fluorescence spectrometry**
Hiroaki Takahashi, Yukie Izumoto, Tsugufumi Matsuyama and Hiroshi Yoshii (p. 286)

15 **Alterations in Mammary Cells Exposed To Radiation Doses Used In Screening Mammography**
Carla L Mota, Andrea Mantuano, Arissa Pickler, Camila Salata, Samara C Ferreira-Machado and Carlos E Dealmeida (p. 287)

16 **Total Reflection X-ray Fluorescence Analysis of Poultry and Swine Mechanically Separated Meat (MSM)**
Rogerta Dalipi, Renato Berneri and Emanuele Sangiorgi (p. 288)

17 **Detection limit in XRF and TXRF: pitfalls and special cases**
Dmitrijs Docenko and Juliette Vandermeer (p. 289)

18 **TXRF quantification of gold nanoparticle uptake in cancer cells: optimizing measurement time and comparison with ICP**
Gabriella Mankovskii and Ana Pejovic-Milic (p. 290)

11.2.2 XRS applications in life sciences

19 **Advances in the Histopathological Characterization of Breast Tissue using Combined XRF and XRD Data in a Multivariate Analysis Approach**
Erica Dao, Eric Johnston, Soo Hyun Byun and Michael Farquharson (p. 291)

20 **TXRF analysis of trace metals in gingival fluid of patients with dental implants and different prosthetic materials**
Miriam Grenón, David Fucks, Manuel García, Fabiana Oliva, Juan Ibañez, María Ibañez, María Juaneda, Carlos Pérez and Héctor Sánchez (p. 292)

21 **IN VIVO EDXRF-ANALYSIS OF LOW Z CHEMICAL ELEMENTS IN FINGERNAILS**
Roberto Cesareo, Alfredo Castellano, Sergio Mascarenhas and Iana Mizumukai (p. 293)

22 **XRF Analysis of Correction Factors for Soft Tissue Equivalents**
Julia Gevaert and David R Chettle (p. 294)

23 **Multielemental Analyses of *Lonomia obliqua* (Lepidoptera, Saturniidae) Caterpillar Using XRF and NAA Techniques**
Cibele Zamboni, Dalton Giovanni,
Vera Salvador, Ivone Sato, Ronaldo Mendonça, Fan Wen and Simone Simons (p. 295)

24 **Elemental Caracterization of the Extract of Propolis Produced by *Scaptotrigona Aff postica* Bee from Brazil Using EDXRF and INAA Techniques**
Luis Leal, Cibele Zamboni, Dalton Giovanni, Roberto Nascimento, Ronaldo Mendonça and Simone Simons (p. 296)

25 **Ionomic and metabolomic changes in mercury and selenium exposed plants and animals by X-ray and FTIR spectrometry**
Anja Kavčič, Jože Grdadolnik, Petra Gregorič, Iztok Arčon and Katarina Vogel-Mikuš (p. 297)

26 **Recognition of different types of ovarian cancer tissues by X-ray fluorescence imaging**
Pawel Wrobel, Maria Grzelak, Dariusz Adamek, Lukasz Chmura, Robert Jach, Andreas Karydas, Marek Lankosz and Alessandro Migliori (p. 298)

27 **Feasibility of whole-body in vivo X-ray Fluorescence of Lead in Bone in Mice**
Tsz Wing Cheung, David Chettle, Nicholas Bock, Kimberly Desmond and Fiona McNeill (p. 299)

28 **Feasibility of dose enhancement assessment: preliminary results by means of Gd-infused polymer gel dosimeter and Monte Carlo study**
Mauricio Santibañez, Yaniro Guillen, David Chacon, Mauro Valente and Rodolfo Figueroa (p. 300)

29 **Monte Carlo optimization of a secondary targeting EDXRF system for increment the limit of detection of gold, silver and gadolinium nanoparticles in tissue**
Mauricio Santibañez, Bryan Casanelli and Mauro Valente (p. 301)

30 **Confocal high energy EDXRF of metallic nano biomarker for detection and simultaneous treatment of cancer**
Rodolfo Figueroa, Mauro Valente, Francisco Malano, Mauricio Santibañez, Federico Geser and Johnnie Lopez (p. 302)

11.2.3 XRS applications in earth and environment

31 **Alternating PM_{10} and $PM_{2.5}$ sampling with an inlet switching system for an online XRF spectrometer**
Markus Furger, Pragati Rai, Jay G. Slowik, Krag Petterson, Ru-Jin Huang, Urs Baltensperger and Andre S.H. Prevot (p. 303)

32 **Determination of EDXRF Detection Limits of Air Samples with Custom Low-Loaded Multi-Elemental Reference Materials**
Krystyna Trzepla, Sinan Yatkin, Warren White and Nicole Hyslop (p. 304)

33 **Quantitative assessment of mercury and other heavy metals on freshwater fish and vegetation collected in areas of gold mining in Brasil**
Angela Andrade, Olívia Bezerra, Ignasi Queralt, S Diez, V Neves, W. Souza, Sofia Pessanha, Luis Martins, Luisa Carvalho, José Fabris and Diana Guimarães (p. 305)

45 **Aerosol Metrology for Atmospheric Science and Air Quality: the AEROMET Project**
Beatrix Pollakowski-Herrmann, Paul Quincey, Konstantina Vasilatou, Alfred Wiedensohler, Stefan Seeger, Luca Boarino, Petr Klapetek, Kai Dirscherl, Francisco Moreno, Peter Pedersen, Thomas Pedersen, Matjaz Zitnik, Jeanne Malet, Jenny Rissler, Szabina Török, Markus Fiebig, Maria Ochsenkühn-Petropoulou, Luca Stabile, Michele Laus, Armin Gross and Burkhard Beckhoff (p. 317)

46 **Bulk and Single-Grain Analyses of Thorium- and Uranium-bearing Mineral Allanite from Palawan, Philippines**
Vallerie Ann Samson, Cheri Anne Dingle, Julius Jecong, Frederick Hila, Reymar Diwa, Daniel Grolimund, Neil Raymund Guillermo and Dario Ferreira-Sanchez (p. 318)

11.2.4 XRS applications in industrial quality and process control

47 **Rapid analysis of minerals in breakfast cereals by Energy Dispersive X-Ray Fluorescence.**
Aurélien Cotard, Sarah Al Sayadi, Stéphane Berrut and Loïc Perring (p. 319)

48 **Capabilities of EDXRF for the determination of trace amounts of sulfur in biodiesel**
Eva Margui, Martin Resano and Ignasi Queralt (p. 320)

49 **ED-XRF determination of trace elements in vegetable raw materials and other light matrices for cosmetic applications**
Matteo Tonelli, Carine Coudray and Julien Heroult (p. 321)

50 **Crude Oil Analysis By X-Ray Scattering Technique**
Davi Oliveira, Ana Cecília Silva, Willians Figueiredo, Marcelino Anjos and Ricardo Lopes (p. 322)

51 **Applications of reference-free X-ray spectrometry towards the development of 3D heterogeneous integration technology**
Yves Kayser, Philipp Hönicke, Lin Hou, Hermann Oppermann, Falk Reinhardt, Ingrid de Wolf and Burkhard Beckhoff (p. 323)

52 **Elemental analysis of powdered dietary supplements by X-ray spectroscopy techniques**
Ignasi Queralt, Eva Margui, Manuela Hidalgo, Sofia Pessanha and Maria Luisa Carvalho (p. 324)

53 **X-ray excited optical luminescence analyzer for on-line analysis of non-metallic inclusions in steel**
Susumu Imashuku and Kazuaki Wagatsuma (p. 325)

11.2.5 WDXRS, XRD and other

54 **Evaluation of Valence Identification Performance of Polychromatic Simultaneous WDXRF and Application to Lithium-ion Batteries**
Kenji Sato, Satoshi Tokuda, Takuro Izumi, Tetsuya Yoneda, Susumu Adachi, Misako Kobayashi, Takashi Mukai, Hideaki Tanaka and Masahiro Yanagida (p. 326)

55 **Using of SK$\alpha_{1,2}$ and SK$\beta_{1,3}$ lines chemical shift for routine sulfur speciation analysis by WDXRF**
Victor Chubarov and Alena Amosova (p. 327)

56 **WDXRF analysis of peat sediments**
Alena Amosova, Victor Chubarov and Galina Pashkova (p. 328)

57 **WDXRF determination of the manganese valence state in Co-bearing ferromanganese crusts**
Victor Chubarov and Alena Amosova (p. 329)

58 **Influence of Contamination Layer on Thickness Evaluation by X-ray Reflectometry**
Yasushi Azuma and Akira Kurokawa (p. 330)

59 **Structural determination of LASSBio-1860: a new lead-compound candidate of the N-acylhydrazone class**
Isadora Bastos, Fanny Costa, Miguel Rocha, Eliezer Barreiro, Delson Braz, Fabio Ferreira, Regina Barroso and Carlos Fraga (p. 331)

60 **CRYSTAL STRUCTURE DETERMINATION OF A BIOACTIVE N-ACYLHYDRAZONE: LASSBIO-129**
Fanny Costa, Tiago Da Silva, Lídia Lima, Eliezer Barreiro and Fabio Ferreira (p. 332)

61 **Chemical elements in soil, grapevine and wine in selected Croatian vineyard regions**
Ivana Čanađija, Vlado Valković, Ante Kutle and Jasmina Obhođaš (p. 333)

62 **Three years long source apportionment study of airborne particles in Ulaanbaatar using XRF and PMF**
Gunchin Gerelmaa, M. Manousakas, Janos Osan, Alessandro Migliori, D. Shagjjamba, S. Lodoysamba, Andreas Karydas, K. Eleftheriadis, Iain Darby and Roman Padilla-Alvarez (p. **??**)

12 Friday program

	Marmorna Hall 1	Marmorna Hall 2
	Chair: W. Malzer	
9:00	Invited: **25 years of aerosol studies by PIXE and complementary techniques at LABEC** *F. Lucarelli* (p. 337)	
9:30	Invited: **Contribution of X-ray fluorescence spectrometry in graphical documents characterization** *M. Manso* (p. 338)	
	Session X: XRS APPLICATIONS IN ADVANCED MATERIALS AND NANOSCIENCE Chair: W. Malzer	Session XI: XRS APPLICATIONS IN EARTH AND ENVIRONMENT Chair: M. Žitnik
10:00	**Operando near sulfur K-edge X-ray absorption spectrometry of Li-S battery coin cells** *C. Zech* (p. 339)	**Elemental Characterization of $PM_{2.5}$ in Nairobi, Kenya by PIXE Technique** *J. Boman* (p. 346)
10:15	**Operando SXM study of rechargeable Zn-air battery anodes in deep-eutectic solvent electrolyte** *M. Kazemian Abyaneh* (p. 340)	**Elemental composition of ambient particulate matter in two Asian megacities measured with a near real time XRF spectrometer** *R. Pragati* (p. 347)
10:30	**Application of Total Reflection X-Ray Fluorescence for the Investigation of Transition Metal Dissolution in the Field of Lithium Ion Batteries** *M. Evertz* (p. 341)	**Non-destructive characterization of airborne particulate matter by combination of cascade impactor sampling and total-reflection X-ray fluorescence related methods** *J. Osán* (p. 348)
10:45	**Coupling operando absorption tomography and X-ray diffraction computed tomography characterization for lithium/sulfur batteries** *G. Tonin* (p. 342)	**Characterization of ambient PM10 dust in industrial locations by continuous fence-line ED-XRF analysis** *H. Indresand* (p. 349)
11:00	Coffee Break	

⋮

⋮

	Session XII: XRS APPLICATIONS IN INDUSTRIAL QUALITY AND PROCESS CONTROL Chair: R. Van Grieken	Session XIII: XRS INSTRUMENTATION II.(X-RAY SOURCES, OPTICS AND DETECTORS) Chair: T. Jach
11:30	**Applying X-ray spectroscopy to assess chemical elements and inorganic compounds in Eye Shadow Cosmetics** *I. Queralt* (p. 343)	**IAEA Nuclear Science and Spectrometry laboratory: Support to XRF laboratories and recent applications** *R. Padilla* (p. 350)
11:45	**Traceable characterisation of calibration samples for advanced thin film materials by reference-free X-ray spectrometry** *C. Streeck* (p. 344)	**HPC-detectors for X-ray spectroscopy** *D. Sisak Jung* (p. 351)
12:00	**Real-time Monitoring of Precious Metals in Slurries: Problems and Solutions** *Y. Van Haarlem* (p. 345)	**ARDESIA: a 4-Channels Fast SDD X-ray Spectrometer** *M. Carminati* (p. 352)
12:15	Closing	