

JST 国際強化支援策シンポジウム「微小部・微量 X 線分析法」

主催：JST（科学技術振興機構）

共催：大阪市立大学

協賛：日本表面科学会関西支部、日本分析化学会近畿支部、日本分析化学会 X 線分析研究懇談会

日時：2009 年 2 月 12 日（木）- 14 日（土）

会場：大阪市立大学杉本キャンパス 学術情報総合センター

JR 阪和線杉本町駅より徒歩 5 分、もしくは大阪市営地下鉄御堂筋線あびこ駅より徒歩 20 分タクシーで 5 分（交通の詳細は

<http://www.osaka-cu.ac.jp/info/commons/access.html> を参照)

内容：X 線分析法は材料解析、工程管理、環境分析、医療診断など様々な分野で利用されています。近年の X 線分析の周辺技術の進歩に伴い、X 線微小部分析や X 線微量分析は大変重要な研究課題となっており、微小部分析に関しては、単に微小部の分析のみならず、元素マッピングや 3 次元分析などが行えるようになってきています。特に、“X-ray Chemical Imaging” は将来的に重要な課題であり、本シンポジウムでも重点的な議論項目です。なお、この JST シンポジウムは、平成 20 年度大阪市立大学重点研究「ヒューマンアダプティブ・マテリアルの開拓」第 4 回シンポジウムとのジョイントミーティングとなります。

JST 国際強化支援策：JST 戦略的創造研究推進事業における課題に対して、研究成果を世界に発信し研究を推進するために国際シンポジウムの開催を支援する事業です。

参加費 無料ですが、参加される方は 2009 年 2 月 5 日までに下記連絡先までご連絡ください。

問い合わせ・連絡先 辻 幸一、大阪市立大学大学院工学研究科

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Program

Feb. 12 (Thu.)

9:45~15:30 大阪市立大学重点研究シンポジウム

15:40~15:45 Introduction, Kouichi Tsuji, Osaka City University, Japan

(1-1) 15:45~16:15 Micro XRF- sources, optics, detector, applications

Peter Wobrauschek; Atominstitut, TU Wien, Austria

(1-2) 16:15~16:45 Imaging of large CH artifacts by means of scanning μ -XRF imaging

Optimization of excitation conditions

Koen Janssens; Antwerp University, Belgium

(1-3) 16:45~17:05 Study on accumulation mechanism of Cd in hyperaccumulating plants by X-ray spectrometry utilizing a high-energy synchrotron radiation X-ray microbeam

Akiko Hokura; Tokyo University of Science, Japan

(1-4) 17:05~17:25 Reference materials (in film) for 3D-XRF analysis

Kazuhiko Nakano; Osaka City University, Japan

17:30~ 19:00 Poster presentation

(P-1) X-ray Fluorescence and Absorption Microtomography reveal Tissue Specific Distribution of Metals in *Daphnia magna*

Björn De Samber; Ghent University, Belgium

(P-2) Simultaneous acquisition of wave-dispersive X-ray spectra of several elements using strongly and accurately shaped Ge crystal

Kouichi Hayashi; Tohoku University, Japan

(P-3) In-situ XRF and XRD movie experiments

Kenji Sakurai; National Institute for Materials Science, Japan

(P-4) Status of the imaging application at the PXR beamline of LEBRA

Manabu Inagaki; Nihon University, Japan

(P-5) Energy dispersive X-ray fluorescence analysis with multi-excitations

Koichi Muraoka; Institute of X-ray Technologies Co., Ltd, Japan

(P-6) Development of MoSi₂/Si multilayer Laue lens

Hisataka Takenaka; NTT-AT Nanofabrication Co., Japan

(P-7) Fundamental research on sample preparation for TXRF analysis

Seiya Kawamata; Osaka City University, Japan

(P-8) Grazing exit micro XRF analysis of layered reference materials

Shintaro Fukuoka; Osaka City University, Japan

(P-9) X-ray chemical imaging using polycapillary x-ray optics in the laboratory

Tasuku Yonehara; Osaka City University, Japan

(P-10) Micro X-ray beam produced by polycapillary x-ray lens and conical pinhole aperture

Kazuo Nakamachi; Osaka City University, Japan

(P-11) Micro XRF analysis in the solutions by using needle-type X-ray collimators

Yoshihiko Nishida; Osaka City University, Japan

(P-12) Grazing exit micro XRF analysis of biological samples

Toru Awane; Kobe Material Testing Laboratory Ltd, Japan

(P-13) Sub-ppm analysis by XRF

Tadashi Utaka; Institute of X-ray Technologies Co., Ltd, Japan

(P-14) Multilayer X-ray optics with high precision deposition

Markus Kraemer; AXO DRESDEN GmbH

(P-15) Nanometer films as reference samples for XRF

Markus Kraemer; AXO DRESDEN GmbH

(この他に大阪市立大学重点研究シンポジウムから 38 件程度のポスター発表を予定)

19:00~ Mixer

Feb. 13 (Fri.)

(2-1) 9:30~10:00 Near surface nanolayer and nanoparticle analysis using X-ray standing waves

Alex von Bohlen; ISAS Institute for Analytical Sciences, Germany

(2-2) 10:00~10:20 Development of micro focus X-ray tube with multi targets for the micro area analysis

Shuji Maeo; Osaka Electro-Communication University, Japan

(2-3) 10:20~10:40 A simple and rapid method for trace element analysis of liquid samples using a benchtop EDXRF spectrometer

Yoshiyuki Kataoka; Rigaku Corporation, Japan

10:40~11:00 Coffee break

(2-4) 11:00~11:30 Chemical Analyses from Elemental Imaging

George Havrilla; Los Alamos National Laboratory, USA

(2-5) 11:30~11:50 XAFS studies for evaluation of the barrier system in the geological disposal for radioactive wastes

Chiya Numako; The University of Tokushima, Japan

(2-6) 11:50~12:10 X-ray fluorescence holography for visualization of 3D atomic arrangement

Kouichi Hayashi; Tohoku University, Japan

(2-7) 12:10~12:30 Advanced X-ray imaging using parametric X-ray radiation (PXR)

Toshiro Sakae; Nihon University, Japan

12:30~14:00 Lunch break

(2-8) 14:00~14:30 Instruments for X-ray imaging without scans - Historical review and future outlook

Kenji Sakurai; National Institute for Materials Science, Japan

(2-9) 14:30~14:50 X-ray chemical imaging with laboratory and synchrotron light sources

Shinjiro Hayakawa; Hiroshima University, Japan

(2-10) 14:50~15:10 X-ray chemical imaging with scanning- and projection modes in the laboratory

Kouichi Tsuji; Osaka City University, Japan

15:10~15:30 Coffee break

(2-11) 15:30~16:00 Advances in capillary optics use for micro-XRF and X-ray imagings

Sultan B. Dabagov; INFN- Laboratori Nazionali di Frascati, Italy

(2-12) 16:00~16:20 Latest developments of polycapillary optics and their applications

Ning Gao; X-Ray Optical Systems, Inc., USA

(2-13) 16:20~16:40 Multi capillary X-ray lens MCX (poly capillary) and its applications

Hiroyoshi Soejima; Shimadzu Corporation, Japan

(2-14) 16:40~17:00 The present and future X-ray detector and related technologies

Kazuo Taniguchi; Institute of X-ray Technologies Co., Ltd, Japan

17:00~17:20 Coffee break

(2-15) 17:20~17:40 Selective amplification of X-rays in the energy range 30-70 keV

Jorge E. Fernandez; University of Bologna, Italy

(2-16) 17:40~18:00 Novel oxide multilayer reflectors at "water-window" wavelengths
fabricated by atomic layer epitaxy / atomic layer deposition
Hiroshi Kumagai; Osaka City University, Japan

(2-17) 18:00~18:20 X-ray imaging by using X-ray analytical microscope with mono-capillary
Atsushi Bando; Horiba Ltd., Japan

18:30~ Dinner party

Feb. 14 (Sat.)

(3-1) 9:00~9:30 Synchrotron-radiation-based hard-X-ray nanoprobe
Kazuto Yamauchi; Osaka University, Japan

(3-2) 9:30~9:50 Laboratory and synchrotron radiation micro and nano X-ray fluorescence:
Instrumental developments and applications in life science
Björn De Samber; Ghent University, Belgium

(3-3) 9:50~10:10 Phase-contrast hard X-ray microscopy with zone plate optical systems
Yasushi Kagoshima; University of Hyogo, Japan

10:10~10:20 Coffee break

10:20~10:30 Memorial address, Kazumi Matsushige; Kyoto University, Japan

(3-4) 10:30~11:00 TXRF using laboratory sources and Synchrotron radiation
Christina Strelt; Atominstitut, TU Wien, Austria

11:00~11:10 Coffee break

(3-5) 11:10~11:40 Full-field transmission X-ray microscopy for bio- and nano- imaging
Piero Pianetta; SLAC/Stanford University, USA

(3-6) 11:40~12:10 Bridging science and art -Discovery of black cat hidden in "Le jardin de
Daubigny" (V. van Gogh) through element mapping image analysis-
Susumu Shimoyama; Kibi International University, Japan

(3-7) 12:10~12:40 XRS in the context of environmental analysis and preventive
conservation of cultural heritage

Rene Van Grieken; Antwerp University, Belgium

12:40~12:50 Closing, Kouichi Tsuji, Osaka City University, Japan