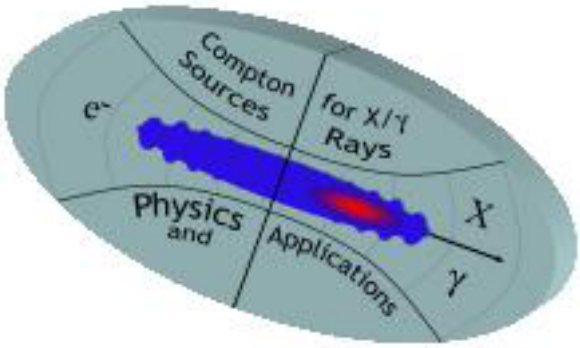
Compton Sources for X/gamma Rays: Physics and Applications



Report of Contributions

Contribution ID: **0** Type: **Oral**

High Finesse Fabry Perot cavity R&D at Orsay

Thursday, 11 September 2008 10:30 (30 minutes)

Primary author: Prof. ZOMER, Fabian (IN2P3/CNRS Université Paris 11)

Presenter: Prof. ZOMER, Fabian (IN2P3/CNRS Université Paris 11)

Session Classification: Morning

Contribution ID: **1** Type: **Oral**

Tsinghua Thomson Scattering X-ray Light Source

Thursday, 11 September 2008 17:30 (45 minutes)

Primary author: Prof. TANG, Chuanxiang (Tsinghua University)

Co-authors: Dr XIANG, Dao (Tsinghua University); Dr HUA, Jianfei (Tsinghua University); Dr YAN, Lixin (Tsinghua University); Dr DU, Qiang (Tsinghua University); Dr HUANG, Wenhui (Tsinghua University); Mrs DU, Yingchao (Tsinghua University)

Presenter: Prof. TANG, Chuanxiang (Tsinghua University)

Session Classification: Afternoon

Contribution ID: **2** Type: **Poster**

Upgrade of X-band Thermionic Cathode RF-gun for Compton Scattering X-ray Source

Primary author: Mr TANIGUCHI, Yoshihiro (The University of Tokyo)

Co-authors: Dr HASHIMOTO, Eiko (The University of Tokyo); Dr SAKAMOTO, Fumito (The University of Tokyo); Prof. URAKAWA, Junji (KEK); Mr LEE, Ki Woo (The University of Tokyo); Dr YOSHIDA, Mitsuhiro (KEK); Prof. AKEMOTO, Mitsuo (KEK); Prof. UESAKA, Mitsuru (The University of Tokyo); Prof. FUKUDA, Shigeki (KEK); Mr NATSUI, Takuya (The University of Tokyo); Mr YAMAMOTO, Tomohiko (The University of Tokyo); Prof. HIGO, Toshiyasu (KEK)

Presenter: Mr TANIGUCHI, Yoshihiro (The University of Tokyo)

Contribution ID: **3** Type: **Oral**

Design study of compact Compton X-ray sources for material and life sciences applications

Monday, 8 September 2008 18:45 (30 minutes)

Primary authors: VINOGRADOV, Alexander (P.N. Lebedev Physical Institute Russian Academy of Science); BESSONOV, Evgueni (P.N. Lebedev Physical Institute Russian Academy of Science); GORBUNKOV, Mikhail (P.N. Lebedev Physical Institute Russian Academy of Science); MASLOVA, Yulia (P.N. Lebedev Physical Institute Russian Academy of Science)

Co-authors: ISHKHANOV, Boris S. (SINP MSU); KOSTRYUKOV, Pavel (ILC MSU); SHVEDUNOV, Vasily I. (SINP MSU); TUNKIN, Vladimir G. (ILC MSU)

Presenter: MASLOVA, Yulia (P.N. Lebedev Physical Institute Russian Academy of Science)

Session Classification: Afternoon

Contribution ID: **4** Type: **Oral**

Clinical mammography with synchrotron radiation and the new digital development

Wednesday, 10 September 2008 17:45 (30 minutes)

Primary author: Dr RIGON, Luigi (INFN, Sezione di Trieste)

Co-authors: Dr BERGAMASCHI, Anna (Paul Scherrer Institut, Switzerland); Dr SCHMITT, Bernd (Paul Scherrer Institut, Switzerland); Dr DREOSSI, Diego (Sincrotrone Trieste SCpA, Italy and INFN, Sezione di Trieste); Prof. CASTELLI, Edoardo (Physics Department, University of Trieste and INFN, Sezione di Trieste); Dr VALLAZZA, Erik (INFN, Sezione di Trieste); Dr ARFELLI, Fulvia (Physics Department, University of Trieste and INFN, Sezione di Trieste); Dr MENK, Ralf Hendrik (Sincrotrone Trieste SCpA, Italy); Dr LONGO, Renata (Physics Department, University of Trieste and INFN, Sezione di Trieste)

Presenter: Dr RIGON, Luigi (INFN, Sezione di Trieste)

Session Classification: Afternoon

Contribution ID: **5** Type: **Invited**

Development of advanced quantum-beam sources and their applications as sophisticated imaging tools

Tuesday, 9 September 2008 09:00 (45 minutes)

Primary author: Dr YAMADA, Kawakatsu (National Institute of Advanced Industrial Science and Technology (AIST))

Co-authors: Prof. SATO, Eiichi (Iwate Medical University); Dr SAKAI, Fumio (Sumitomo Heavy Industries, Ltd.(SHI)); Prof. MORI, Hidezo (Tokai University, School of Medicine); Dr IKEURA-SEKIGUCHI, Hiromi (AIST); Dr OGAWA, Hiroshi (AIST); Dr TOYOKAWA, Hiroyuki (AIST); Prof. MORI, Koichi (Ibaraki Prefectural University of Health Sciences); Dr KOIKE, Masaki (AIST); Mr YASUMOTO, Masato (AIST); Prof. FUKUYAMA, Naoto (Tokai University, School of Medicine); Mr SEI, Norihiro (AIST); Dr SUZUKI, Ryoichi (AIST); Dr KURODA, Ryunosuke (AIST)

Presenter: Dr YAMADA, Kawakatsu (National Institute of Advanced Industrial Science and Technology (AIST))

Session Classification: Morning

Contribution ID: **6** Type: **Poster**

Study of a bunch in an undulator with the Maxwell Equations solver RETAR

Primary author: Dr ROSSI, Andrea Renato (INFN-MI)

Presenter: Dr ROSSI, Andrea Renato (INFN-MI)

Contribution ID: **7** Type: **Oral**

Detection of radioactive isotopes by laser Compton gamma-ray beams

Wednesday, 10 September 2008 12:15 (30 minutes)

Primary author: Dr HAJIMA, Ryoichi (Japan Atomic Energy Agency)

Co-authors: Dr MINEHARA, Eisuke (Japan Atomic Energy Agency); Prof. OHGAKI, Hideaki (Kyoto University); Dr TOYOKAWA, Hiroyuki (National Institute of Advanced Industrial Science and Technology); Dr KAWASE, Keigo (Japan Atomic Energy Agency); Dr KANDO, Masaki (Japan Atomic Energy Agency); Dr KIKUZAWA, Nobuhiro (Japan Atomic Energy Agency); Dr NISHIMORI, Nobuyuki (Japan Atomic Energy Agency); Dr HAYAKAWA, Takehito (Japan Atomic Energy Agency); Dr SHIZUMA, Toshiyuki (Japan Atomic Energy Agency)

Presenter: Dr HAJIMA, Ryoichi (Japan Atomic Energy Agency)

Session Classification: Morning

Contribution ID: **8** Type: **Invited**

Characterization Results of the BNL ATF Compton X-ray Source Using K-edge Absorbing Foils

Thursday, 11 September 2008 18:15 (45 minutes)

Primary author: WILLIAMS, Oliver (UCLA Department of Physics and Astronomy)

Co-authors: HEMSING, Erik (UCLA Department of Physics and Astronomy); ANDONIAN, Gerard (UCLA Department of Physics and Astronomy); POGORELSKY, Igor (Brookhaven National Laboratory, Accelerator Test Facility); ROSENZWEIG, James (UCLA Department of Physics and Astronomy); KUSCHE, Karl (Brookhaven National Laboratory, Accelerator Test Facility); BABZIEN, Marcus (Brookhaven National Laboratory, Accelerator Test Facility); YAKIMENKO, Vitaly (Brookhaven National Laboratory, Accelerator Test Facility)

Presenter: WILLIAMS, Oliver (UCLA Department of Physics and Astronomy)

Session Classification: Afternoon

Contribution ID: **9** Type: **Oral**

Development of Compact Hard X-ray Source via Laser Compton Scattering at AIST

Monday, 8 September 2008 18:15 (30 minutes)

Primary author: Dr KURODA, Ryunosuke (National Institute of Advanced Industrial Science and Technology (AIST))

Co-authors: Dr SAKAI, Fumio (Sumitomo Heavy Industries, Ltd (SHI)); Dr IKEURA-SEKIGUCHI, Hiromi (National Institute of Advanced Industrial Science and Technology (AIST)); Dr TOYOKAWA, Hiroyuki (National Institute of Advanced Industrial Science and Technology (AIST)); Dr YAMADA, Kawakatsu (National Institute of Advanced Industrial Science and Technology (AIST)); Dr MORI, Kouichi (Ibaraki Prefectural University of Health Sciences); Dr KOIKE, Masaki (National Institute of Advanced Industrial Science and Technology (AIST)); Dr YASUMOTO, Masato (National Institute of Advanced Industrial Science and Technology (AIST))

Presenter: Dr KURODA, Ryunosuke (National Institute of Advanced Industrial Science and Technology (AIST))

Session Classification: Afternoon

Contribution ID: **10** Type: **Oral**

Phase contrast medical imaging with compact X-ray sources: towards clinical applications

Tuesday, 9 September 2008 12:00 (30 minutes)

Primary author: Dr COAN, Paola (European Synchrotron Radiation Facility, Grenoble (France) - Munich-Centre for Advance Photonics, Munich (Germany))

Co-authors: Dr BRAVIN, Alberto (European Synchrotron Radiation Facility, Grenoble (France) - Munich-Centre for Advance Photonics, Munich (Germany)); Dr GLASER, Christian (Institut of Clinical Radiology, Klinikum Ludwig-Maximilians-Universität, Munich (Germany) - Munich-Centre for Advance Photonics, Munich (Germany)); Prof. HABS, Dietrich (Department of Physics, Ludwig-Maximilians-Universität Munich, Garching (Germany) - Munich-Centre for Advance Photonics, Munich (Germany)); Dr GRUENER, Florian (Department of Physics, Ludwig-Maximilians-Universität Munich, Garching (Germany) - Munich-Centre for Advance Photonics, Munich (Germany)); Prof. REISER, Maximilian (Institut of Clinical Radiology, Klinikum Ludwig-Maximilians-Universität, Munich (Germany) - Munich-Centre for Advance Photonics, Munich (Germany)); Dr SCHNEIDER, Tanjs (Institut of Clinical Radiology, Klinikum Ludwig-Maximilians-Universität, Munich (Germany) - Munich-Centre for Advance Photonics, Munich (Germany))

Presenter: Dr COAN, Paola (European Synchrotron Radiation Facility, Grenoble (France) - Munich--Centre for Advance Photonics, Munich (Germany))

Session Classification: Morning

Contribution ID: **11** Type: **Oral**

Recent Progress in Generation and Application of AIST Laser-Compton Photon Beam

Tuesday, 9 September 2008 11:30 (30 minutes)

Primary author: Dr TOYOKAWA, Hiroyuki (AIST)

Co-authors: Dr KINOMURA, Atsushi (AIST); Dr OGAWA, Hiroshi (AIST); Dr YAMADA, Kawakatsu (AIST); Dr TANAKA, Masahito (AIST); Dr KOIKE, Masaki (AIST); Dr OSHIMA, Nagayasu (AIST); Dr SEI, Norihiro (AIST); Dr SUZUKI, Ryoichi (AIST); Dr KURODA, Ryunosuke (AIST); Dr HOHARA, Shin-ya (Kinki University); Dr GOKO, Shinji (JAEA); Mr KAIHORI, Takeshi (Konan University); Dr OHDAIRA, Toshiyuki (AIST)

Presenter: Dr TOYOKAWA, Hiroyuki (AIST)

Session Classification: Morning

Contribution ID: **13** Type: **Poster**

Advantages of quasi-monochromatic X-ray sources in absorption mammography

Primary author: OLIVA, Piernicola (Università di Sassari and INFN Cagliari)

Co-authors: BRUNETTI, Antonio (Università di Sassari and INFN Cagliari); GOLOSIO, Bruno (Università di Sassari and INFN Cagliari); CARPINELLI, Massimo (Università di Sassari and INFN Cagliari); STUMBO, Simone (Università di Sassari and INFN Cagliari)

Presenter: OLIVA, Piernicola (Università di Sassari and INFN Cagliari)

Contribution ID: **14** Type: **Oral**

X-Ray spectra reconstruction from analysis of attenuation data: a Back Scattering Thomson Source application.

Thursday, 11 September 2008 11:30 (30 minutes)

Primary authors: ENDRIZZI, Marco (Pisa); DELOGU, Pasquale (Pisa)

Co-author: STEFANINI, Arnaldo (Pisa)

Presenter: ENDRIZZI, Marco (Pisa)

Session Classification: Morning

Contribution ID: **15** Type: **Poster**

Emittance measurements of electron beam from photocathode RF Gun in Tsinghua University

Primary author: Dr DU, Yingchao (Tsinghua University)

Co-authors: Prof. TANG, Chuanxiang (Tsinghua University); Dr XIANG, Dao (Tsinghua University); Dr YAN, Lixin (Tsinghua University); Dr HUANG, Wenhui (Tsinghua University)

Presenter: Dr DU, Yingchao (Tsinghua University)

Contribution ID: **16** Type: **Oral**

Polarization effects of electron and photons in the Thomson scattering X-ray source

Thursday, 11 September 2008 19:00 (30 minutes)

Primary authors: Prof. TANG, Chuanxiang (Tsinghua University); Dr DU, Yingchao (Tsinghua University)

Co-authors: Prof. HE, Hongjian (Tsinghua University); Mrs REN, jing (Tsinghua University)

Presenter: Dr DU, Yingchao (Tsinghua University)

Session Classification: Afternoon

Contribution ID: **17** Type: **Oral**

Compton Scattering Monochromatic Tunable X-ray Source based on X-band Multi-bunch linac at the University of Tokyo

Tuesday, 9 September 2008 10:30 (30 minutes)

Primary author: Dr SAKAMOTO, Fumito (The University of Tokyo)

Co-authors: Dr HASHIMOTO, Eiko (The University of Tokyo); Mr NOSE, Hiroyuki (IHI); Dr SAKAE, Hisaharu (IHI); Prof. URAKAWA, Junji (KEK); Mr LEE, KiWoo (The University of Tokyo); Dr YAMAMOTO, Masashi (Accuthera); Dr YOSHIDA, Mitsuhiro (KEK); Prof. UESAKA, Mitsuru (The University of Tokyo); Mr KANEKO, Namio (IHI); Dr NAKAMURA, Naoki (Accuthera); Prof. FUKUDA, Shigeki (KEK); Mr NATSUI, Takuya (The University of Tokyo); Mr YAMAMOTO, Tomohiko (The University of Tokyo); Prof. HIGO, Toshiyasu (KEK); Mr TANIGUCHI, Yoshihiro (The University of Tokyo)

Presenter: Dr SAKAMOTO, Fumito (The University of Tokyo)

Session Classification: Morning

Contribution ID: **18** Type: **Oral**

Application of monochromatic keV X-ray source to X-ray drug delivery system development

Tuesday, 9 September 2008 12:30 (30 minutes)

Summary

X-ray drug delivery system is the most advanced radiation therapy coming after IMRT (Intensity Modulated Radiation Therapy) and IGRT (Image Guided). DDS uses advanced nano-scaled polymers which contain and deliver drug or contrast agent to cancers without side effects. Several X-ray DDS poses high-Z atoms like Pt and Au to absorb X-rays effectively and used as contrast agent for inspection. Moreover, they have radiation enhancement effect by emission of Auger electron and successive characteristic X-rays. The enhancement factor of Pt and Au is more than five. This can be used for therapy. This new modality must be very important for inspection and therapy of deep cancers. We are making use of our Compton scattering monochromatic keV X-ray source for the purpose. Studies to evaluate the biological effect of the gold colloids have been carried out. The combinational effect of X-rays and colloidal gold has been evaluated from several points of view. DNA double- and single- strand breaks were measured with the gamma-H2AX focus assay and the alkaline comet assay, respectively; the cell toxicity was evaluated using the colony assay. Results obtained so far indicate that the combinational use of X-rays and colloidal gold does not enhance the toxicity. This implies that colloidal gold would be beneficial as contrast agent rather than a sensitizer during radiotherapy, which is also supported by numerical simulations showing that colloidal gold accumulated inside a tumor with a practical mass percentage provides contrast on the X-ray image as clear as bones. It should be noted, however, that this should depend on various other parameters such as the size of colloidal gold and the energy of irradiated X-rays. Further studies are in progress. Particle Induced X-ray Emission (PIXE) has been employed to measure the time transient of uptake of cisplatin micelle, which is the practical anti-cancer DDS containing Pt and shell-shaped polymer, into cells. The results showed that it is very likely that not cisplatin micelle itself but cisplatin released from the micelle is uptaken by the cells. Presently experiments using microbeam PIXE system have been carried out to evaluate the behavior of platinum-incorporated DDS drugs inside cells/organs.
In addition to the above fundamental in-vitro experiments, numerical simulation of the imaging by the gold colloids by using our X-band Compton source is presented for coming experiments.

Primary author: Prof. UESAKA, Mitsuru (University of Tokyo, Nuclear Professional School)

Co-authors: Ms MORI, Azusa (Department of Nuclear Engineering and Management, University of Tokyo); Dr SAKAMOTO, Fumito (Nuclear Professional School, University of Tokyo); Mr TAGUCHI, Hiroki (Department of Nuclear Engineering and Management, University of Tokyo); Ms MIZUNO, Kazue (Department of Nuclear Engineering and Management, University of Tokyo); Prof. KATAOKA, Kazunori (Department of Material Engineering, University of Tokyo); Dr NAKAGAWA, Keiichi (Department of Radiation Oncology, University of Tokyo); Prof. NISHIYAMA, Nobuhiro (Department of

Material Engineering, University of Tokyo); Prof. YUSA, Noritaka (Department of Nuclear Engineering and Management, University of Tokyo)

Presenter: Prof. UESAKA, Mitsuru (University of Tokyo, Nuclear Professional School)

Session Classification: Morning

Contribution ID: **19** Type: **Oral**

Dependence of edge-enhancement-index on experimental parameters in phase contrast imaging using quasi-monochromatic sources

Wednesday, 10 September 2008 18:15 (30 minutes)

Primary authors: Prof. STEFANINI, Arnaldo (Dipartimento di Fisica, Università di Pisa, and INFN Sez. di Pisa, Italy); Dr GOLOSIO, Bruno (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy); Dr MASALA, Giovanni Luca (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy); Dr ZANETTE, Irene (Dipartimento di Fisica, Università di Pisa, and INFN Sez. di Pisa, Italy); Prof. CARPINELLI, Massimo (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy); Dr DELOGU, Pasquale (Dipartimento di Fisica, Università di Pisa, and INFN Sez. di Pisa, Italy); Dr OLIVA, Piernicola (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy); Dr STUMBO, Simone (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy)

Presenter: Dr GOLOSIO, Bruno (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN Sez. di Cagliari, Italy)

Session Classification: Afternoon

Contribution ID: **20** Type: **Oral**

Laser-plasma electron accelerator for all optical inverse-Compton x-ray source

Wednesday, 10 September 2008 10:15 (30 minutes)

Primary author: Prof. KOYAMA, Kazuyoshi (University of Tokyo)

Co-authors: Mr MAEKAWA, Akira (University of Tokyo); Dr YAMAZAKI, Atsushi (University of Tokyo); Dr MIURA, Eisuke (National Institute of Advanced Industrial Science and Technology); Mr MIYASHITA, Masaru (Tokyo University of Science); Prof. UESAKA, Mitsuru (University of Tokyo); Dr MASUDA, Shin-ichi (National Institute of Advanced Industrial Science and Technology); Prof. HOSIKAI, Tomonao (Tokyo Institute of Technology)

Presenter: Prof. KOYAMA, Kazuyoshi (University of Tokyo)

Session Classification: Morning

Contribution ID: **21** Type: **Poster**

Experimental characterization of in-line phase contrast x-ray imaging

Primary authors: Dr GOLOSIO, Bruno (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN, Sezione di Cagliari, Italy); Dr ZANETTE, Irene (Dipartimento di Fisica, Università di Pisa, and INFN, Sezione di Pisa, Italy); Dr DELOGU, Pasquale (Dipartimento di Fisica, Università di Pisa, and INFN, Sezione di Pisa, Italy)

Co-authors: Prof. STEFANINI, Arnaldo (Dipartimento di Fisica, Università di Pisa, and INFN, Sezione di Pisa, Italy); Dr MASALA, Giovanni Luca (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN, Sezione di Cagliari, Italy); Prof. CARPINELLI, Massimo (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN, Sezione di Cagliari, Italy); Dr OLIVA, Piernicola (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN, Sezione di Cagliari, Italy); Dr STUMBO, Simone (Strutt. Dip. di Matematica e Fisica, Università di Sassari, and INFN, Sezione di Cagliari, Italy)

Presenter: Dr ZANETTE, Irene (Dipartimento di Fisica, Università di Pisa, and INFN, Sezione di Pisa, Italy)

Contribution ID: **22** Type: **Oral**

Theoretical considerations for x-ray phase contrast mammography by Compton source

Monday, 8 September 2008 17:45 (30 minutes)

Primary author: Dr CEDOLA, Alessia (Istituto di Fotonica e Nanotecnologie - CNR, Roma, Italy)

Co-authors: Dr GIANNINI, Cinzia (Istituto di Cristallografia, CNR-IC, 70126 Bari); Dr BUKREEVA, Inna (Istituto di Fotonica e Nanotecnologie - CNR, Roma, Italy); Dr DE CARO, Liberato (Istituto di Cristallografia, CNR-IC, 70126 Bari); Dr LAGOMARSINO, Stefano (Istituto di Fotonica e Nanotecnologie - CNR, Roma, Italy); Dr PETRILLO, Vittoria (Istituto Nazionale di Fisica Nucleare, Milano, Italy)

Presenter: Dr LAGOMARSINO, Stefano (Istituto di Fotonica e Nanotecnologie - CNR, Roma, Italy)

Session Classification: Afternoon

Contribution ID: **24** Type: **Oral**

ULTRA-HIGH BRIGHTNESS ELECTRON BEAMS BY PLASMA BASED INJECTORS FOR ALL OPTICAL FREE ELECTRON LASERS

Friday, 12 September 2008 09:45 (30 minutes)

Primary author: PETRILLO, Vittoria (MI)

Co-authors: Dr BACCI, Alberto (INFN Milano); ROSSI, Andrea Renato (INFN Milano); SGATTONI, Andrea (INFN Bologna); BENEDETTI, Carlo (INFN Bologna); TURCHETTI, Giorgio (Università Bologna); Dr SERAFINI, Luca (INFN MIlano); LONDRILLO, Paolo (INFN Bologna); TOMASSINI, Paolo (INFN Milano)

Presenter: PETRILLO, Vittoria (MI)

Session Classification: Morning

Contribution ID: **25** Type: **Poster**

APPLICATION OF THE THOMSON SOURCE RADIATION IN THE PHASE CONTRAST IMAGING

Primary author: PETRILLO, Vittoria (MI)

Co-authors: CEDOLA, Alessia (CNR Roma); MAROLI, Cesare (INFN Milano); BUKHRAEVA, Inna (CNR Roma); SERAFINI, Luca (INFN Milano); LAGOMARSINO, Stefano (CNR Roma)

Presenter: PETRILLO, Vittoria (MI)

Contribution ID: **26** Type: **Oral**

Multi-disciplinary experiments with hundred TW class Ti:Sa lasers

Wednesday, 10 September 2008 09:45 (30 minutes)

Primary author: Prof. GIULIETTI, Danilo (Physics Department of the University and INFN, Pisa)

Presenter: Prof. GIULIETTI, Danilo (Physics Department of the University and INFN, Pisa)

Session Classification: Morning

Contribution ID: **27** Type: **Oral**

Guiding of X-rays from Inverse Compton Scattering as a Means to Enhance Flux and Brightness

Friday, 12 September 2008 12:00 (30 minutes)

Primary author: Prof. GOVER, Avi (Tel Aviv University)

Co-authors: Prof. PELLEGRINI, Claudio (UCLA); Dr TRAVISH, Gil (UCLA); Prof. ROSENZWEIG, James (UCLA)

Presenter: Dr TRAVISH, Gil (UCLA)

Session Classification: Morning

Contribution ID: **28** Type: **Poster**

Approaches to High Average Flux, High Brightness X-ray Sources Based on Inverse Compton Scattering

Primary author: Dr TRAVISH, Gil (UCLA)

Co-authors: Dr MUROKH, Alex (RadiaBeam Technologies); Prof. ROSENZWEIG, James (UCLA); Mr FRIGOLA, Pedro (RadiaBeam Technologies); Mr BOUCHER, Salime (RadiaBeam Technologies)

Presenter: Dr TRAVISH, Gil (UCLA)

Contribution ID: **29** Type: **Oral**

Stand-off Detection of Nuclear Materials Using Inverse Compton Scattering Generated Gamma-Rays

Wednesday, 10 September 2008 11:45 (30 minutes)

Primary author: Mr BOUCHER, Salime (RadiaBeam Technologies)

Co-authors: Dr MUROKH, Alex (RadiaBeam Technologies); Dr TRAVISH, Gil (UCLA); Prof. ROSENZWEIG, James (UCLA); Mr RUELAS, Marcos (RadiaBeam Technologies); Mr FRIGOLA, Pedro (RadiaBeam Technologies)

Presenter: Mr BOUCHER, Salime (RadiaBeam Technologies)

Session Classification: Morning

Contribution ID: **30** Type: **Invited**

The Thomson Source at INFN-LNF and its foreseen applications, as part of the SPARC&PLASMONX National Projects

Monday, 8 September 2008 12:15 (45 minutes)

Primary author: Dr SERAFINI, Luca (MI)

Presenter: Dr SERAFINI, Luca (MI)

Session Classification: Morning

Contribution ID: **31** Type: **Poster**

Status of Thomson Source at SPARC/PLASMONX

Primary author: Dr BACCI, Alberto Luigi (INFN-MI)

Co-authors: Dr ROSSI, Andrea Renato (INFN-MI); Prof. DEMARTINIS, Carlo (INFN-MI); Dr VICARIO, Carlo (LNF-INFN); Prof. MAROLI, Cesare (INFN-MI); Dr VACCAREZZA, Cristina (LNF-INFN); Mr GIULIETTI, Danilo (CNR-IPCF/Pisa and Univ. of Pisa); Dr BROGGI, Francesco (INFN-MI); Dr DIPIRRO, Giampiero (INFN-LNF); Dr GATTI, Giancarlo (LNF-INFN); Dr DARIO, Giove (INFN-MI); Dr GIZZI, Leonida A. (CNR-IPCF/Pisa and Univ. of Pisa); Dr CULTRERA, Luca (INFN-LNF); Dr SERAFINI, Luca (INFN-MI); Mr TOMASSINI, Paolo (CNR-IPCF/Pisa and Univ. of Pisa); Dr OLIVA, Piernicola (Univ. of Sassari); Prof. PETRILLO, Vittoria (INFN-MI)

Presenter: Dr BACCI, Alberto Luigi (INFN-MI)

Contribution ID: **32** Type: **Invited**

3D Nanoscale Imaging Using Coherent X-Rays

Tuesday, 9 September 2008 09:45 (45 minutes)

Primary author: RAINES, Kevin (Department of Physics and Astronomy, University of California)

Co-authors: MANCUSCO, Adrian (Department of Physics and Astronomy, University of California); SONG, Chanyong (Department of Physics and Astronomy, University of California); CHEN, Chien-Chun (Institute of Physics, Academia Sinica); JIANG, Huaidong (Department of Physics and Astronomy, University of California); XU, Rui (Department of Physics and Astronomy, University of California); SALHA, Sara (Department of Physics and Astronomy, University of California); ISHIKAWA, Tetsuya (RIKEN, SPring-8); LEE, Ting-Kuo (Institute of Physics, Academia Sinica)

Presenter: RAINES, Kevin (Department of Physics and Astronomy, University of California)

Session Classification: Morning

Contribution ID: **33** Type: **Invited**

HARP(High-gain Avalanche Rushing amorphous Photoconductor) detector

Wednesday, 10 September 2008 11:00 (45 minutes)

Primary author: Dr TANIOKA, Kenkichi (NHK Science & Technical Research Laboratories)

Presenter: Dr TANIOKA, Kenkichi (NHK Science & Technical Research Laboratories)

Session Classification: Morning

Contribution ID: **34** Type: **Invited**

Laser Super-cavity

Wednesday, 10 September 2008 09:00 (45 minutes)

Primary author: Prof. URAKAWA, Junji (kek)

Presenter: Prof. URAKAWA, Junji (kek)

Session Classification: Morning

Contribution ID: **35** Type: **Invited**

Experience with synchrotron light source and comparison

Monday, 8 September 2008 17:00 (45 minutes)

Primary author: Dr COUPRIE, Marie-Emmanuelle (Synchrotron SOLEIL)

Presenter: Dr COUPRIE, Marie-Emmanuelle (Synchrotron SOLEIL)

Session Classification: Afternoon

Contribution ID: **36** Type: **Invited**

Compact Systems and Application for Water-Window X-rays

Friday, 12 September 2008 11:15 (45 minutes)

Summary

We have succeeded in geneataion of low energy quasi-monochromatic X-arys via inverse Compton scattering between high quality electron beam and high intensity laser. Further we have started the improvements for higher number of photons using high quantum efficiengy photo-cathode RF-gun with multi-bunch beam.

Primary author: Prof. WASHIO, Masakazu (RISE, Waseda University)

Presenter: Prof. WASHIO, Masakazu (RISE, Waseda University)

Session Classification: Morning

Contribution ID: **37** Type: **Poster**

PIC simulations of the production of high-quality electron beams via laser-plasma interaction

Primary author: Dr BENEDETTI, Carlo (Department of Physics University of Bologna and INFN-Bologna)

Co-authors: Dr SGATTONI, Andrea (Department of Physics University of Bologna and INFN-Bologna); Prof. TURCHETTI, Giorgio (Department of Physics University of Bologna and INFN-Bologna); Dr SERAFINI, Luca (INFN-Milano); Dr TOMASSINI, Paolo (INFN-Milano); Dr LONDRILLO, Pasquale (INAF, Osservatorio Astronomico di Bologna and INFN-Bologna); Dr PETRILLO, Vittoria (Università degli Studi di Milano)

Presenter: Dr BENEDETTI, Carlo (Department of Physics University of Bologna and INFN-Bologna)

Contribution ID: **38** Type: **Invited**

Simulations for linear and fully nonlinear Thomson Scattering with TSST code

Thursday, 11 September 2008 09:00 (45 minutes)

Primary author: Dr TOMASSINI, Paolo (I.N.F.N. sect. of Milan)

Co-authors: Dr BACCI, Alberto (I.N.F.N. sect. of Milan); Dr GIULIETTI, Antonio (I.P.C.F-CNR, Pisa); Dr BENEDETTI, Carlo (I.N.F.N. sect. of Bologna); Prof. GIULIETTI, Danilo (I.N.F.N. sect. of Pisa); Dr GIZZI, Leonida (I.P.C.F-CNR, Pisa); Prof. SERAFINI, Luca (I.N.F.N. sect. of Milan); Dr PETRILLO, Vittoria (Dip. Fisica Univ. of Milano)

Presenter: Dr TOMASSINI, Paolo (I.N.F.N. sect. of Milan)

Session Classification: Morning

Contribution ID: **39** Type: **Oral**

THe LAL Compton Program

Thursday, 11 September 2008 12:00 (30 minutes)

Primary author: Dr VARIOLA, alessandro (LAL IN2P3 CNRS)

Presenter: Dr VARIOLA, alessandro (LAL IN2P3 CNRS)

Session Classification: Morning

Contribution ID: **40** Type: **Invited**

Nonlinear Compton scattering

Thursday, 11 September 2008 09:45 (45 minutes)

Primary author: Dr HARTEMANN, Frederic (Lawrence Livermore National Laboratory)

Presenter: Dr HARTEMANN, Frederic (Lawrence Livermore National Laboratory)

Session Classification: Morning

Contribution ID: **41** Type: **Invited**

An overview of emerging scientific applications of synchrotron radiation: biomedical imaging, radiation therapy, paleontology and cultural heritage

Wednesday, 10 September 2008 18:45 (45 minutes)

Summary

An overview of imaging and radiotherapy programs with synchrotron radiation is here given. These scientific programs could also be carried out at compact sources when available.

Primary author: Dr BRAVIN, Alberto (ESRF)

Presenter: Dr BRAVIN, Alberto (ESRF)

Session Classification: Afternoon

Contribution ID: **42** Type: **Poster**

Implementation of a Compton source for X-rays in the ELSA facility

Primary author: Ms CHAUCHAT, Anne-Sophie (Thales-CEA)

Co-authors: Mr BINET, Alain (CEA/DAM); Mr FLAMENT, Jean-Luc (CEA/DAM); Mr ORTEGA, Jean-Michel (Université Paris Sud); Mr BRASILE, Jean-Pierre (Thales Communication); Mr BALLEYGUIER, Pascal (CEA/DAM); Mrs MULLER, Sophie (Thales Communication); Mr LE FLANCHEC, Vincent (CEA/DAM)

Presenter: Ms CHAUCHAT, Anne-Sophie (Thales-CEA)

Contribution ID: **43** Type: **Invited**

Imaging in Radiotherapy

Wednesday, 10 September 2008 17:00 (45 minutes)

Summary

The correlation between the progress of the diagnostic modalities and the radiotherapy methods and results will be discussed and the main concepts for the treatment optimization based on diagnostic will be presented

Primary author: Dr CALANDRINO, riccardo (IRCCS SAN RAFFAELE)

Presenter: Dr CALANDRINO, riccardo (IRCCS SAN RAFFAELE)

Session Classification: Afternoon

Contribution ID: **44** Type: **Invited**

Compton Ring/ERL Polarized Positron Source for ILC/CLIC

Friday, 12 September 2008 09:00 (45 minutes)

Summary

A concept of the laser-Compton polarized positron source for ILC/CLIC is presented. In the concept, the super cavity to stack laser pulse is employed to achieve high efficiency. For the electron beam, usage of an electron storage ring or an ERL is considered.

Primary author: Dr OMORI, Tsunehiko (KEK)

Presenter: Dr OMORI, Tsunehiko (KEK)

Session Classification: Morning

Contribution ID: **45** Type: **Invited**

The Compact Light Source: A Miniature Synchrotron producing x-rays with Inverse Compton Scattering.

Monday, 8 September 2008 11:30 (45 minutes)

Primary author: Prof. RUTH, Ronald (Lyncean Technologies, Inc.)

Co-authors: Mr RIFKIN, Jeffrey (Lyncean Technologies, Inc.); Dr RODERICK, Loewen (Lyncean Technologies, Inc.)

Presenter: Prof. RUTH, Ronald (Lyncean Technologies, Inc.)

Session Classification: Morning

Contribution ID: **46** Type: **not specified**

Introductory tutorial

Monday, 8 September 2008 09:30 (45 minutes)

Primary author: Prof. ROSENZWEIG, James (UCLA)

Presenter: Prof. ROSENZWEIG, James (UCLA)

Session Classification: Morning

Contribution ID: **47** Type: **not specified**

Compton source and nuclear photo-science application

Monday, 8 September 2008 10:15 (45 minutes)

Primary author: Mr BARTY, Christopher (Lawrence Livermore National Laboratory)

Presenter: Dr SIDERS, Craig (LLNL)

Session Classification: Morning

Contribution ID: **48** Type: **not specified**

Linac e+ source for ILC, CLIC

Friday, 12 September 2008 10:15 (45 minutes)

Primary author: YAKIMENKO, Vitaly (Brookhaven National Laboratory, Accelerator Test Facility)

Presenter: YAKIMENKO, Vitaly (Brookhaven National Laboratory, Accelerator Test Facility)

Session Classification: Morning

Contribution ID: **50** Type: **not specified**

Integrating Laser and Linac Technology for Next Generation X-ray Sources

Thursday, 11 September 2008 19:30 (30 minutes)

Primary author: GRAVES, William

Co-author: Dr GRAVES, William (MIT)

Presenter: Dr GRAVES, William (MIT)

Session Classification: Afternoon

Contribution ID: **51** Type: **not specified**

Introduction and Workshop overview

Monday, 8 September 2008 09:00 (30 minutes)

Presenter: Dr SERAFINI, Luca (INFN MIlano)

Session Classification: Introduction and Workshop overview