

SPECIAL FOCUS WORKSHOPS

New Developments in the Micro-Pattern Gas Detector

The recent results in the field of Micro-Pattern Gas Detectors – used for the fast tracking at the LHC and high precision tracking at the ILC, pixel readout of Micro-pattern Gas Detectors, astrophysics research and medical applications, optical readout of MPGD, with a focus on design principles, performance, reliability and limitations - will be discussed. The format of the workshop consists of invited speakers and presentations selected from submitted abstracts.

The Topics of the Workshop will include:

- ❖ High Precision Tracking for TPC
- ❖ High Rate Tracking, Triggering and Aging Studies
- ❖ Gaseous Photomultipliers
- ❖ New Manufacturing Technologies for MPGD
- ❖ Pixel Readout of Micro-Pattern Gas Detectors
- ❖ Astrophysics, Neutrino Physics and Medical Imaging
- ❖ Optical Readout of Micro-Pattern Gas Detectors
- ❖ System Aspects: Detector and Electronic Integration



Paul Colas
SACLAY, France



Leszek Ropelewski
CERN, Switzerland



Maxim Titov
SACLAY, France

MPGD Workshop Co-Chairs

MP1 Time Projection Chamber Readout

SUNDAY, OCT. 28 09:00-10:35, CORAL V

Session Chair: Paul Colas, *CEA/DAPNIA*

MP1-1: Charge Dispersion in Micro Pattern Gas Detectors with a Resistive Anode

M. S. Dixit, *Carleton University & TRIUMF, Canada*

MP1-2: Cosmic Ray Tests of a GEM-Based TPC Operated in Mixtures of Ar-CF₄-Isobutane

M. Kobayashi, *KEK (High Energy Accelerator Research Organization), Japan*

On behalf of part of the ILC-TPC Collaboration

MP1-3: Study of Gating with GEM for ILC TPC

A. Ishikawa, A. Sugiyama, T. Higashi, A. Aozu, H. Tsuji, *Saga University, Japan*; K. Fujii, M. Kobayashi, T. Matsuda, H. Kuroiwa, R. Yonamine, *KEK, Japan*; O. Nitoh, H. Ohta, K. Sakai, H. Bito, *Tokyo University of Agriculture and Technology, Japan*; T. Watanabe, *Kogakuin University, Japan*; Y. Kato, K. Hiramatsu, T. Yazu, *Kinki University, Japan*; T. Takahashi, *Hiroshima University, Japan*

MP1-4: Single Electron Response and Energy Resolution of a Micromegas Detector

V. C. M. Lepeltier, *LAL Laboratoire de l'Accélérateur Linéaire d'Orsay, France*; B. Genolini, J. Pouthas, T. Zerguerras, *IPNO Institut de Physique Nucléaire, France*

MP2 Gaseous Photon Detectors and Neutron Detector Applications

SUNDAY, OCT. 28 11:00-12:40, CORAL V

Session Chair: Vladimir Peskov, *CERN*

MP2-1: Global-Local-Grouping Multi-Grid-Type MSGC for Neutron Applications

Y. Takada, H. Takahashi, K. Fujita, H. Niko, *University of Tokyo, Japan*; M. Furusaka, *Hokkaido University, Japan*; H. Toyokawa, *Japan Synchrotron Radiation Research Institute, Japan*; K. Ishitoya, N. Hikida, *Toshiba Electron Tubes and Devices, Co., Ltd, Japan*; Y. Yarimizu, K. Tsuji, M. Hirota, M. Nikaido, *Toshiba Corporation, Japan*

MP2-2: Development of Neutron Gaseous Detector with GEM

S. Uno, M. Sekimoto, T. Murakami, M. Tanaka, N. Ujiie, *KEK, Japan*; S. Nakagawa, E. Nakano, *Osaka City University, Japan*; A. Sugiyama, *Saga University, Japan*; F. Sugiyama, *Tokyo University of Science, Japan*; T. Uchida, *University of Tokyo, Japan*

MP2-3: Micromegas for Neutron Detection

S. Andriamonje, *CEA-Saclay DSM/DAPNIA/SPHN, France*

On behalf of the CEA Saclay Micromegas group

MP2-4: Photodetection with a Micromegas Device

F. Jeanneau, *CEA Saclay, France*; P. Bascle, *Photonis, France*; P. Gorodetzki, T. Patzak, P. Salin, *UP7, France*

MP2-5: The Photon-Assisted Cascaded Electron Multiplier

J. F. C. A. Veloso, *University of Aveiro, Portugal*; F. D. Amaro, J. M. F. dos Santos, *University of Coimbra, Portugal*; A. Breskin, A. Lyashenko, R. Chechik, *The Weizmann Institute of Science, Israel*

MP3 Pixel Readout for Micro-Pattern Gas Detectors

SUNDAY, OCT. 28 13:45-15:05, CORAL V

Session Chair: Craig Woody, *Brookhaven National Lab*

MP3-1: Ultra High Resolution Imaging of Single and Multiple Coincidence Photons

R. Bellazzini, *INFN Pisa, Italy*; A. Tremisn, *SSL Berkeley, USA*

MP3-2: Measurements and Modeling of the Amplification and Ion Backflow Properties of Integrated Micromegas Detectors

M. Chefdeville, H. van de Graaf, J. Timmermans, J. Visschers, *NIKHEF, The Netherlands*; V. Blanco Carballo, J. Schmitz, *University of Twente / MESA+, The Netherlands*; D. Attié, P. Colas, I. Giomataris, *CEA, France*

MP3-3: Results from MPGDs with a Protected TimePix or Medipix-2 Pixel Sensor as Active Anode

H. van der Graaf, *Nikhef, The Netherlands*

On behalf of the GridPix group

MP3-4: Performance of a Small TPC Prototype Readout with the TimePix

A. Bamberger¹, K. Desch², U. Renz¹, M. Titov³, N. Vlasov¹, P. Wienemann², A. Zwerger¹

¹Freiburg University, Germany; ²Bonn University, Germany; ³DAPNIA, France

MP4 New MPGD Techniques: Production Processes

SUNDAY, OCT. 28 15:30-17:30, CORAL V

Session Chair: Leszek Ropelewski, *CERN*

MP4-1: Development of Micro Pixel Gas Chamber Based on Printed Circuit Technology and Applications to X-Ray and Gamma-Ray Imaging

T. Tanimori, K. Tsuchiya, Y. Okada, K. Hattori, S. Kabuki, H. Kubo, S. Kurosawa, K. Miuchi, H. Nishimura, A. Takada, K. Ueno *Kyoto University, Japan*

MP4-2: A Study of GEM Foils Produced at Tech Etch

B. Azmoun, C. Woody, *Brookhaven National Laboratory, USA*; B. Surrow, F. Simon, *Massachusetts Institute of Technology, USA*; R. Majka, N. Smirnov, *Yale University, USA*; D. Crary, K. Kearney, G. Keeler, G. Saini, *Tech Etch, USA*; J. Herstoff, *Muhlenberg College, USA*; J. Sinsheimer, *Ohio State University, USA*

MP4-3: Large "bulk" Micromegas Detectors for TPC and Other HEP Applications

M. Zito, E. Mazzucato, *Dapnia/SPP CEA-Saclay, France*

MP4-4: Fine-Pitch and Thick-Foil Gem Production in Japan

T. Tamagawa, *RIKEN, Japan*

MP4-5: Development and Performance Evaluation of Thick-GEM

Y. L. Yamaguchi, H. Hamagaki, T. Gunji, S. X. Oda, Y. Aramaki, S. Sano, *CNS, University of Tokyo, Japan*; T. Tamagawa, *RIKEN, Japan*

MP4-6: Development of a New Hole-Type Avalanche Detectors and the First Results of Their Applications

G. Charpak, *Biospace Inc., France*; P. Benaben, P. Breuil, *Ecole Superior des Mines, France*; P. Martinego, V. Peskov, *CERN, Switzerland*

MP5 New MPGD Techniques: Applications

SUNDAY, OCT. 28 17:45-19:25, CORAL V

Session Chair: Maxim Titov, *CEA Saclay, DAPNIA*

MP5-1: Search of rare events with MPGD detectors

I. Giomataris, *CEA SACLAY, France*

MP5-2: High Spatial Resolution in β -Imaging with a PIM Device

J. Donnard, D. Thers, N. Servagent, L. Luquin
Subatech, France

MP5-3: Understanding the Gain Characteristics of GEMs Inside the PHENIX Hadron Blind Detector.

J. A. Kamin¹, W. Anderson¹, A. Babak², C.-Y. Chi³, Z. Citron¹, A. Dubey⁴, J. M. Durham¹, Z. Fraenkel⁴, T. K. Hemmick¹, A. Kozlov⁴, A. Milov², M. Naglis⁴, R. Pisani², I. Ravinovich⁴, T. Sakaguchi², D. Sharma⁴, A. Sickles², I. Tserruya⁴, C. Woody²
¹*Stony Brook University, USA*; ²*Brookhaven National Labs, USA*; ³*Columbia University, USA*; ⁴*Weizmann Institute of Science, Israel*

MP5-4: The Full Scale Prototype of the Cylindrical-GEM Detector as Inner Tracker

G. Bencivenni, D. Domenici
Laboratori Nazionali di Frascati - INFN - Italy, Italy

MP5-5: The Commissioning of the GEM Detector for the Muon Apparatus of the LHCb Experiment

G. Bencivenni¹, M. Alfonsi¹, W. Bonivento², A. Cardini², F. Murtas¹, M. Poli Lener¹, D. Raspino², B. Saitta^{2,3}
¹*Laboratori Nazionali di Frascati - INFN - Italy, Italy*; ²*INFN, Sezione di Cagliari, Italy*; ³*Università degli Studi di Cagliari, Italy*

WORKSHOP ON INNOVATIVE TECHNIQUES FOR HADRONTHERAPY

FRIDAY, NOVEMBER 2, 08:00-16:45, (ROOM ??)

This 1-day workshop proposes to review the evolution of innovative concepts and instrumentation around technologies for hadron beam radiotherapy (hadrontherapy). This emerging field is a perfect illustration of merging Nuclear and Radiation Instrumentation experts with the Medical Imaging community.

The goal of the workshop is to provide an informal forum for interested participants to discuss in a convivial manner the technical progress in the field and to exchange recent experiences. The format of the workshop will consist of review talks and oral and posters presentations selected from abstracts submitted before September 31, 2007. The final program will be available on the conference WEB site by October 15th. Papers will be published in the NSS/MIC conference record.

The preliminary agenda of contributions fields is the following:

- ❖ Review talks (clinical views, new facilities and projects around the world)
- ❖ New accelerator concepts (protons, ions, antiprotons, neutrons)
- ❖ Instrumentation for beam delivery control and real time dose monitoring (Nozzles, In-beam PET systems, Proton CT imaging, advanced micro- and nano- dosimetry, neutron contaminations in charged particle therapy)
- ❖ Proton CT imaging
- ❖ Simulation and modeling for beam delivery and patient treatment planning

We are looking forward to your contributions (<http://www.nss-mic.org/2007>) and to meet together in Hawaii. Please visit the conference website www.nssmic.org/2007 for updated information. For information regarding this Workshop program, please contact:

Co-Chairs of Hadrontherapy Workshop



Patrick Le Dû
DAPNIA CEA Saclay
France



Steve Peggs
Brookhaven Nat. Lab
USA



Anatoly Rozenfeld
Univ. of Wollongong
Australia

THE ASIAN-PACIFIC PROGRAM

It is a great pleasure to welcome you to a special Asian-Pacific Program at the IEEE MSS MIC. It is the first time that this special program was organized as a part of the conference to provide a forum for the participants to learn about the range of scientific research and technological development in the Asian-Pacific region. The development of technology is of great interest to the multi-disciplinary nuclear science communities, including HEP, radiation detectors and instrumentation, medical physics and medical imaging.

This Program will overview the major NSS/MIC scientific activities in Asia and the South Pacific by leaders in the field, and I sincerely hope that the Program will support the exchange of ideas and collaboration between East and West.

New opportunities for collaboration in a growing Hi Tech environment in Australia, China, Japan, South Korea, New Zealand and Singapore will be discussed during the presentations by 18 invited speakers, followed by informal discussion between three sessions. I hope that this program will be the beginning of regular Asian-Pacific highlights at future IEEE NSS/MIC and in the future will bring these conferences to Asian-Pacific countries on a regular basis.

I would like to thank the speakers, session chairs and attendees for their contributions and strong desire to promote collaboration with Asian-Pacific countries.

Anatoly Rozenfeld
Asian-Pacific Program Chair



Anatoly Rozenfeld
Asian-Pacific
Program Chair

The Asian-Pacific Program

SESSION 1: TUESDAY, OCTOBER 30, 17:30 – 19:00, LEHUA SUITE

- Session Chairs: Steve Meikle, *University of Sydney*
Hee-Joung Kim, *Yonsei University, South Korea*
- 17:30 – 17:35 Introduction
Anatoly Rozenfeld
Asian-Pacific Program Chair
University of Wollongong
- 17:35 – 17:50 **Validity and Value of Quantitative Spect Reconstruction Package (Qspect) for a Multi-Centre Clinical Studies in Japan**
Hidehiro Iida
National Cardiovascular Center, Japan
- 17:50 – 18:05 **Techniques for Motion-Corrected Brain Imaging in Humans and Small Animals with SPECT and PET**
Roger Fulton
Royal Prince Alfred Hospital, Australia
- 18:05 – 18:20 **Challenges for Quantitative Pre Clinical Molecular Imaging Studies of the CNS**
Steve Meikle
*Brain & Mine Institute
University of Sydney, Australia*
- 18:20 – 18:35 **Medical Imaging and Instrumentation in Korea**
Hee-Joung Kim
Yonsei University, South Korea
- 18:35 – 18:50 **Medical Imaging on the Australian Synchrotron**
Rob Lewis
Monash University, Australia
- 18:50 – 19:05 **Synchrotron Radiation Research and Radiation Detector Development in Singapore**
Herbert O. Moser
*Singapore Synchrotron Light Source National
University of Singapore, Singapore*

SESSION 2: THURSDAY, NOVEMBER 1, 17:00 - 19.00, LEHUA SUITE

- Session Chairs: Geoff Taylor, *University of Melbourne*
Yifang Wang, *Institute of High Energy Physics*
- 17:00 – 17:20 **Current Status of the High Energy Program in China**
Yifang Wang
Institute of High Energy Physics, China
- 17:20 – 17:40 **The Australian HEP Program**
Geoff Taylor
University of Melbourne, Australia
- 17:40 – 18:00 **Review of Present and Future HEP Program in Japan**
Masanori Yamauchi
*Institute of Particle and Nuclear Studies of KEK,
Japan*
- 18:00 – 18:20 **Overview of High Energy Physics Research in Korea**
Jung Keun Ahn
Pusan National University, South Korea

- 18:20 – 18:40 Present Statuses of KEKB and Belle
Takayuki SUMIYOSHI
Tokyo Metropolitan University, Japan
- 18:40 – 19:00 The Advanced Materials Research at GE Global
Research Shanghai
Qun Deng
GE Global Research Shanghai, China

SESSION 3: FRIDAY, NOVEMBER 2, 17:00 – 18:30, LEHUA SUITE

- Session Chairs: Peter Johnston, *RMIT University*
Masanori Yamauchi
*Institute of Particle and Nuclear Studies of KEK,
Japan*
- 17:00 – 17:15 **Overview of Radiation Detector Technology
Development in Korea**
Gyuseong Cho
KAIST, Daejeon, South Korea
- 17:15 – 17:30 **Radiation Sensors Research and Development
in New Zealand**
David Krofcheck
University of Auckland, New Zealand
- 17:30 – 17:45 **Developments of Radiation Detectors and
Radiation Instrumentation in Australia**
Anatoly Rozenfeld
University of Wollongong, Australia
- 17:45 – 18:00 **Nanoscale Radiation Detector Research –
An Australian Perspective**
Andrew Dzurak
University of NSW, Australia
- 18:00 – 18:15 **Opportunities for Australia to Expand its
Involvement in the Nuclear Fuel Cycle”**
Peter Johnston
RMIT University, Australia
- 18:15 – 18:30 **Recent Development in Radiation Detection
and Imaging at CSIRO**
James Tickner
CSIRO, Australia

SPECIAL SESSION ON TECHNOLOGY TRANSFER

WEDNESDAY, OCTOBER 31, 17:00 – 19:00, SEA PEARL 5 & 6

In the special session on Technology Transfer, professionals and top experts in the field will share their experience and present examples of great success stories within our community where “just an idea” or “small invention” has led to a new commercial product, spin-off, or new company. Conference participants will have an opportunity to inquire and learn about the necessary steps for such paths to success. Technology Transfer Office professionals and experts will provide information concerning intellectual property, patents, seed money, venture capital, and other forms of start-up funding. Detailed information can be found on the conference website: www.nss-mic.org/2007.



Uwe Bratzler



Jean-Marie Le Goff

Co-Chairs of Special Session on Technology Transfer