



8th International Conference on
**New Developments
in Photodetection**
Tours, France, 3-7 July 2017



Scientific Program

<http://www.ndip.fr>
ndip17@cea.fr

Local Organizing Committee

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Contact Information

For any question about the program, authors can send an email to:
ndip17-abstract@cea.fr.

For any other question please send an email to: **ndip17@cea.fr.**

Dear Colleagues,

Since 1996, the NDIP international conference has been organized to gather physicists, engineers, technicians and students working in the field of instrumentation for photodetection. We are proud to organize this event again in France and to welcome you to Tours for the 8th edition of NDIP.

The Local Organizing Committee and the International Advisory Committee have prepared an exciting scientific and social program, an ideal opportunity to share your experience, your latest scientific results, or your new projects in a receptive and friendly atmosphere. The scientific program is composed of oral presentations during plenary sessions, Tutorial lectures, Review talks, and Invited papers. Three comprehensive poster sessions and a diverse industrial exhibition will further enrich the program.

Highlighting young researchers continues to be a priority of our conference.

This year, the best scientific presentation of a young scientist in a plenary session (Pierre Besson Prize) and in a poster session will be awarded a prize generously offered by NIM-A (NIM-A Young Scientist Award). In addition, and in keeping with NDIP tradition, the Committees will also award the best young scientist in every poster session.

We very much look forward to welcoming you to Tours,

Enjoy the conference,

Olivier Limousin
NDIP17 Chair



General Information

The Conference is held at the “Vinci - Centre International des Congrès de Tours” which is located just opposite of the Tours main train station.

Address:

Centre International de Congrès de Tours – Vinci
26 boulevard Heurteloup
37000 Tours – France
Tel: +33 (0)2 47 70 70 70

Oral Presentations

All sessions will take place in the **Auditorium Descartes**, which will be set with an LCD projector, a microphone, and a laser pointer. A presentation laptop will be provided in the session room – no personal laptops will be permitted for presentation. Speakers shall bring their presentations for upload to the Computer Room on the second floor no later than 2 hours before the beginning of their session. A person from the staff will upload the presentation and you will be able to check it on our systems. Accepted formats for presentation files are PowerPoint and PDF. The preferred presentation format is 4:3, but 16:9 can be accommodated. Each oral presentation is allocated 20 minutes. You should spend about 15 minutes for presentation of the problem, the background, the innovative approach, the new results, and - if appropriate - the comparative evaluation. The remaining 5 minutes should be reserved for questions and discussion with the attendees.

Poster Presentations

The poster exhibition is in the exhibition space at the second floor of the Congress Center.

The poster setup can begin as early as Monday afternoon (3 July). Authors are encouraged to leave their posters on display for the whole week.

Poster locations are assigned. Please search for your poster location at the conference desk.

The area for your poster materials is 2m tall by 1m wide (NOTE: vertical orientation). As an example, the typical A0 size poster is 1.189 m x 0.841 m.

All poster materials shall be provided by the Author(s).

Push pins will be provided at the Conference to attach poster materials to the poster board.

Each Poster Session will be 60 minutes long. The Author(s) are expected to:

- Be set up prior to the session.
- Be present at their poster for the entire session.
- Explain their paper to the collected audience and answer questions as appropriate.

For all information about the Poster Session logistics, please contact the Poster Session Chair, Rémi Chipaux (remi.chipaux@cea.fr).

Lunches and Coffee Breaks

Lunches will be served from Monday to Friday in a designated area of the Congress Center.

Tickets will be provided to all participants together with the badge to access the sessions. Additional tickets may be purchased, at least two days in advance, at the cost of 30 € per lunch.

All coffee breaks will be served in the Exhibition and Poster Hall on the second floor.

Badge Policies and Security Check

All badges and conference materials must be picked up at the Registration desk. For security purposes, all attendees are required to wear their badge for entry into the conference center and to attend the sessions. It is your responsibility to ensure that you have your badge at all times.

Also note that a security check will be put in place at the entrance of the Congress Center, where the attendees' bags will be inspected. Please ensure that you arrive at the Congress Center early enough to allow this security check to take place.

Conference Proceedings

All authors are invited to submit a manuscript to be included in the NDIP 2017 Conference Proceedings. The proceedings will be published in a special issue of Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment (NIM-A).

Before publication, all manuscripts will be submitted to a peer review process.

To submit your manuscript you have to follow the procedure provided by NIM-A. Please note that while the submitted material must not be formatted using the templates given here, these are useful to verify the approximate final length of your manuscript.

NIM-A provides an official LaTeX template and we have also created an unofficial MS word template for you use.

A formatted manuscript must not exceed the following limits:

- 4 pages for talk and posters contribution
- 6 pages for invited papers
- 8 pages for review papers

Please read attentively the instructions and prepare your material for submission as explained on the NIM-A web site.



You will be able to submit your manuscript starting from the beginning of the conference and up to 30 September 2017. No late submission will be accepted. Please refer to the NDIP 2017 web site (in Author information / Publications) for all the relevant practical information and links.

Social Events

Tuesday 4 July, 19:15-20:30

Wine and Cheese

Stay in the Congress Center in the late afternoon to discover the industrial exhibition and enjoy some regional specialties.

Touraine gastronomy is recognized in France thanks to its originality. Rabelais and Gargantua have made it famous with Saint-Maure-de-Touraine (goat cheese), rillons and rillettes, Cormery macarons... Touraine offers more than ten AOC wines – red wines: Bourgueil, Saint-Nicolas-de-Bourgueil, Chinon, Touraine... and white wines: Vouvray, Montlouis-sur-Loire, Touraine Sauvignon...

Wednesday 5 July, 16:45-20:30

Excursions

Discover some typical places of the Tours region in the afternoon. You register on-site for one of the following excursions – we will provide the bus transfer and the guided tour.

Please note that, since all visits are booked in advance, the choice of the excursions will follow a first-come, first-served basis.

The excursion fee is included in your registration fees.

The city of Tours and visit of the Musée du Compagnonnage

Tours city, between tradition and modernity, heritage and development, right in the idle of the Val-de-Loire region is part of the UNESCO worldwide heritage and has the label of City of Art and History.

The Musée du Compagnonnage (Trade Guilds Museum), housed in the former Abbey of Saint-Julien de Tours, exhibits a range of truly remarkable collections. Collective masterpieces from the 19th century, masterpieces of patience, masterpieces created for reception into a guild, along with Companions' attributes (sticks, flasks and colours), commemorative pictures, tools, archives, traditions and works by Companions of the Tour of France, from their beginnings to the present day, are all represented. This is the only museum of its kind in the world.



The city of Tours and visit of the contemporary art center Olivier Debré

The contemporary art center Olivier Debré opened in March 2017, as the custodian of an endowment granted by the painter Olivier Debré.

Throughout his career, Olivier Debré (1920-1999) showed a particular attachment to the Loire. The current temporary exhibition is: "Olivier Debré: A journey to Norway". Norway, a destination he travelled to most frequently, was the birthplace for an outstanding collection of paintings with a unique color palette.

The castle of Chaumont-sur-Loire

A natural belvedere overlooking the unspoiled Loire, offering one of the most beautiful views of this royal river, the Domaine de Chaumont-sur-Loire extends over an area of 30ha and welcomes more than 385,000 visitors a year.

The estate comprises the castle (15C-19C), stables and landscaped park designed by Henri Duchêne, and is also the venue for the International Garden Festival. The estate is also currently hosting installations by contemporary artists and exhibitions by famous photographers.

The château, which overlooks the Loire Valley UNESCO World Heritage site, is a fine example of the Gothic period's defensive architecture as well as of the ornamental architecture of the Renaissance. Chaumont-sur-Loire's stables are typical of what wealthy members of the aristocracy had built to accommodate their horses in the later years of the 19th century.

The international Garden Festival is organized on this 32-hectare domain from 20 April to 5 November.

Transportation by bus will be provided (45 minutes from Tours city). The visit includes the castle, the stables and the gardens.



Thursday 6 July, 19:00-midnight

Conference Dinner

The conference dinner will be organized in the surprising and relaxing "Espace Nobuyoshi". An aperitif will be served in the Japanese garden and the dinner will be served in the tropical hall. Prices for best posters will be given at this occasion.

Transportation by bus will be provided (30 minutes from Tours city).



Scientific Program





	Monday	Tuesday	Wednesday	Thursday	Friday
08:00	Registration				
08:30		Tutorial 3 SiPM	Tutorial 4 X and γ -ray Detectors	Tutorial 5 Scintillator Detectors	
09:00	Tutorial 1 Radiation Effects				S.12b SiPM Systems II
09:30		Session 5 Fast Timing Applications	Session 9 Medical Applications II	S.12a - SiPM Systems I Session 13 Noble Liquid Detectors	Session 17 Pixelated Detectors II
10:00	Coffee Break				
10:30	Tutorial 2 Gaseous Detectors	Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00		Session 6 Pixelated Detectors I	Session 10 Applications to Cherenkov Telescopes	Session 14 Gaseous Detectors	Session 18 SiPM Performance
11:30	NDIP 2017 Opening Session				
12:00					
12:30					
13:00	Lunch	Lunch	Lunch	Lunch	Lunch
13:30					
14:00		Session 7 Applications to Nuclear Monitoring	Session 11 Vacuum Detectors I	Session 15 Vacuum Detectors II	Session 19 Applications to Physics II
14:30	Session 1 SPAD	Industrial Session I			
15:00					
15:30	Session 2 SiPM Technologies	Poster Session Le Rosé & Coffee at 16:15	Poster Session Le Blanc & Coffee at 16:15	Poster Session Le Rouge & Coffee at 16:00	Closing Session
16:00	Coffee Break				
16:30					
17:00	Session 3 Medical Application I	Session 8 Application to Physics I		Session 16 Front-End Electronics	
17:30					
18:00	Session 4 Cryogenic Detectors	Industrial Session II	(16:45-20:30) Excursions		
18:30					
19:00				(18:15-00:00) Conference Dinner	
19:30		(19:15-20:30) Wine and Cheese Party			
20:00					



Monday 3 July

Tutorial 1 Monday, 08:30-09:45

Session Chair: Thomas Patzak, IN2P3/APC, France

How to Manage Space Radiation Effects on Space Experiments

A. Claret
CEA/IRFU, France

Tutorial 2 Monday, 10:15-11:30

Session Chair: Thomas Patzak, IN2P3/APC, France

Photon Detection and Imaging with Gaseous Counters

F. Sauli
CERN, Switzerland

Conference Opening Monday, 11:30-11:45

Session Chair: Olivier Limousin, CEA/IRFU, France

Welcome to NDIP 2017

Olivier Limousin
CEA/IRFU, France

Review Talk - (11:45) Recent Advances in Photodetectors for Medical Applications

Samo Korpar
University of Maribor, Slovenia

Session 1 - SPAD Monday, 14:00-15:35

Session Chair: Eric Gros d'Aillon, CEA Tech, Grenoble, France

Review Talk - (14:00) A Decade of Single-photon SPAD Imagers in the Biomedical Sciences

Claudio Bruschini
EPFL, Switzerland

654 - (14:45, invited) Studies of GaInP based Geiger-mode APD arrays

Robert Hirosky
University of Virginia, USA

530 - (15:15) New SPAD Arrays For High-Throughput Single-Molecule Fluorescence Assays

Antonino Ingargiola¹, F. Ceccarelli², Angelo Gulinatti², Ivan Rech², Massimo Ghioni²,
Shimon Weiss¹, Xavier Michalet¹

¹ UCLA, USA

² DEIB, Politecnico di Milano, Italy

Session Chair: Eric Gros d'Aillon, CEA Tech, Grenoble, France

546 - (15:35, invited) First Silicon Photomultipliers and Single-photon Avalanche Diodes with Enhanced NIR Detection Efficiency at FBK

Fabio Acerbi, Giovanni Paternoster, Alberto Gola, Nicola Zorzi, Claudio Piemonte
Fondazione Bruno Kessler, Trento, Italy

596 - (16:05) Digital SiPM Channel Integrated in CMOS 65 nm with Measured Sub-20 ps FWHM Single Photon Timing Resolution

Frédéric Nolet, Frédéric Dubois, Nicolas Roy, Samuel Parent, William Lemaire, Serge A. Charlebois, Réjean Fontaine, Jean-Francois Pratte
Department of Electrical and Computer Engineering, Université de Sherbrooke, Sherbrooke, QC, Canada

Session Chair: Shin'ichiro Takeda, Okinawa Institute of Science and Technology Graduate University, Japan

323 - (16:55) Ultracompact Compton Camera for Innovative Gamma-ray Imaging

Jun Kataoka¹, Aya Kishimoto¹, Takanori Taya¹, Yasuhiro Iwamoto¹, Saku Mochizuki¹, Leo Tagawa¹, Ayako Koide¹, Koki Sueoka¹, Keiko Matsunaga², Hayato Ikeda², Eku Shimosegawa², Jun Hatazawa², Naoki Kawachi³, Yuto Nagao³, Mitsutaka Yamaguchi³, Keisuke Kurita³, Shinji Ohsuka⁴, Toshiyuki Toshito⁵, Mitsuhiro Kimura⁵
¹ Waseda University, Japan, ² Osaka University, Japan, ³ National Institutes For Quantum And Radiological Science And Technology, Japan, ⁴ Hamamatsu Photonics K.K., Japan, ⁵ Nagoya Proton Therapy Center, Japan

333 - (17:15) Novel Photon-Counting Low-Dose Computed Tomography Using a Multi-Pixel Photon Counter

Hayato Morita¹, Tsubasa Oshima¹, Jun Kataoka¹, Makoto Arimoto¹, Hideo Nitta²
¹ Waseda University, Japan
² Hitachi Metals, Ltd., Japan

352 - (17:35) Spatially resolved Measurement of Wideband Prompt Gamma-Ray Emission Toward On-Line Monitor for the Future Proton Therapy

Ayako Koide¹, Jun Kataoka¹, Takanori Taya¹, Yasuhiro Iwamoto¹, Makoto Arimoto¹, Taku Inaniwa²
¹ Waseda University, Japan, ² QST, Japan

365 - (17:55) Development of Cherenkov Detectors for PET

Viatcheslav Sharyy¹, Clotilde Canot¹, Marharyta Alokhhina^{1,2}, Emilie Ramos¹, Olga Kochebina^{1,3}, Xavier Mancardi¹, Philippe Abbon¹, Christophe Flouzat¹, Jean-Philippe Mols¹, Sebastien Jan³, Pierre Starzinski¹, Patrice Verrecchia¹, Gerard Tauzin¹, Dominique Yvon¹
¹ IRFU, CEA, Gif-sur-Yvette, France, ² Taras Shevchenko National University of Kyiv, Kyiv, Ukraine, ³ SHFJ, CEA, Orsay, France

411 - (18:15) Final Tests with MACACO: a Compton Telescope for Hadron Therapy Treatment Monitoring

Gabriela Llosa¹, John Barrio¹, Ane Etxebeste¹, Pablo G. Ortega^{1,2}, Carlos Lacasta¹, Enrique Muñoz¹, Josep. F. Oliver¹, Carles Solaz¹
¹ IFIC -Valencia, Spain, ² CERN, Switzerland

Session Chair: Olivier Limousin, CEA/IRFU, France

577 - (18:35) An Innovative Bolometric Cherenkov-Light Detector for a Double Beta Decay Search

Valentina Novati¹, D.R. Artusa^{2,3}, F.T. Avignone III³, J.W. Beeman⁴, I. Dafinei⁵, L. Dumoulin¹, Z. Ge⁶, A. Giuliani^{1,7}, C. Gotti⁸, P. De Marcillac¹, S. Marnieros¹, S. Nagorny^{9,2}, S. Nisi², C. Nones¹⁰, E.B. Norman¹¹, E. Olivier¹, D. Orlandi², L. Pagnanini^{9,2}, L. Pattavina², G. Pessina⁸, S. Pirro², D.V. Poda^{1,12}, C. Rusconi⁸, K. Schaffner^{9,2}, N.D. Scielzo¹³, Y. Zhu¹⁴
¹ CSNSM, Univ. Paris-Sud, CNRS/IN2P3, Université Paris-Saclay, Orsay, France, ² INFN - Laboratori Nazionali del Gran Sasso, Assergi, Italy, ³ Dept. of Physics and Astronomy, University of South Carolina, Columbia, SC, USA, ⁴ Materials Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, ⁵ INFN - Sezione di Roma, Roma, Italy, ⁶ Shanghai Institute of Ceramics - Chinese Academy of Science, Shanghai, PR of China, ⁷ DISAT, Università dell'Insubria, Como, Italy, ⁸ INFN - Sezione di Milano Bicocca, Milano, Italy, ⁹ INFN - Gran Sasso Science Institute, L'Aquila, Italy, ¹⁰ CEA Saclay, DSM/IRFU, Gif-sur-Yvette, France, ¹¹ Dept. of Nuclear Engineering, University of California, Berkeley, USA, ¹² Institute for Nuclear Research, Kyiv, Ukraine, ¹³ Lawrence Livermore National Laboratory - Nuclear and Chemical Science Division, Livermore, CA, USA, ¹⁴ Shanghai Institute of Ceramics - Chinese Academy of Science, Shanghai, PR of China

644 - (18:55) Design and Fabrication of Cooled Silicon Bolometers for mm Wave Detection

Valérie Goudon^{1,2}, Abdelkader Aliane^{1,2}, Claire Vialle^{1,2}, Wilfried Rabaud^{1,2}, Stéphane Pocas^{1,2}, Elaura Baghe^{1,2}, Laurent Dussopt^{1,2}, Patrick Agnese^{1,2}, Nicolas Lio Soon Shun^{1,2}, Sébastien Becker^{1,2}, Vincent Reveret³, Jean-Luc Sauvageot³, Louis Rodriguez³
¹ Univ. Grenoble Alpes, Grenoble, France
² CEA, LETI, MINATEC Campus, Grenoble, France
³ AIM Paris Saclay, UMR CEA/CNRS/UP7, CEA/IRFU/SAP, Orme des Merisiers, France

Tutorial 3

Tuesday, 08:00-09:15

Session Chair: Yuri Musienko, *Univ. of Notre Dame, USA, and INR RAS, Moscow, Russia***Silicon Photomultipliers (SiPM)**

V. Puill

IN2P3/LAL, Orsay, France

Session 5 - Fast Timing Applications

Tuesday, 09:15-10:15

Session Chair: Olivier Limousin, *CEA/IRFU, France***378 - (09:15) Future challenges to reach 10ps in TOF-PET**Stefan Gundacker, Etienne Auffray, Paul Lecoq*CERN, Switzerland***396 - (09:35) Precision Timing Photon Detectors using Cadmium-Telluride Sensors**Adi Bornheim, Cristian Pena, Aashrita Mangu, Jiajing Mao, Maria Spiropulu, Si Xie, ZhicaiZhang*Caltech, California, USA***427 - (09:55) A Micromegas EUV Photodetector for Picosecond Timing**T. Papaevangelou¹, I. Giomataris¹, M. Kebbiri¹, F.J. Iguaz¹, J. Bortfeldt², F. Brunbauer², C. David², M. Lupberger², H. Muller², E. Oliveri², F. Resnati², L. Ropelewski², M. van Stenis², T. Schneider², P. Thuiner², R. Veenhof², S. White^{2,3}, K.T. McDonald³, Changguo Lu³, D. Gonzalez-Diaz⁴, Y. Zhou⁵, Z. Zhang⁵, J. Liu⁵, I. Manthos⁶, K. Paraschou⁶, S. Tzamarias⁶¹ IRFU, CEA, Université Paris-Saclay, France, ² CERN, Switzerland, ³ Princeton University, USA, ⁴ University of Santiago de Compostela, Spain, ⁵ University of Science and Technology of China, China, ⁶ University of Thessaloniki, Greece

Session 6 - Pixelated Detectors I

Tuesday, 10:45-12:25

Session Chair: Aline Meuris, *CEA/IRFU, France***272 - (10:45) High Speed Imaging and Spectroscopy of X-rays with Deep Subpixel (Spatial) Resolution**Lothar Strueder^{1,2}, Heike Soltau³, Peter Holl¹, Robert Hartmann¹, Sebastian Ihle³, David Kalok¹¹ PNSensor, München, Germany, ² University of Siegen, Germany, ³ PNDetector, München, Germany**358 - (11:05) Wide-band X-ray Detector Combining a CCD and a Columnar CsI(Tl) Scintillator**Hiroshi Nakajima¹, Ryo Nagino², Kiyoshi Hayashida¹, Ritsuko Imatani¹, Hisashi Kitamura³¹ Osaka University, Osaka, Japan, ² NEC Aerospace Systems, Japan, ³ National Institute of Radiological Sciences, Chiba-shi, Chiba, Japan

394 - (11:25) Soft X-ray Photon Counting Capability of a Back-Illuminated High-Speed CMOS Sensor

Noriyuki Narukage¹, Shin-Nosuke Ishikawa²

¹ National Astronomical Observatory of Japan, Japan

² ISAS/JAXA, Japan

397 - (11:45) Kyoto's Event-Driven X-ray Astronomical SOI Pixel Sensor

Takeshi Tsuru¹, Hideki Hayashi¹, Katsuhiro Tachibana¹, Makoto Itou¹, Shunichi Ohmura¹, Hideaki Matsumura¹, Hiroyuki Uchida¹, Takaaki Tanaka¹, Shinya Nakashima², Yasuo Arai³, Ikuo Kurachi³, Koji Mori⁴, Ayaki Takeda⁴, Yusuke Nishioka⁴, Nobuaki Takebayashi⁴, Shoma Yokoyama⁴, Takayoshi Kohmura⁵, Kouki Tamasawa⁵, Yusuke Ozawa⁵, Tadashi Sato⁵, Shoji Kawahito⁶, Keiichiro Kagawa⁶, Keita Yasutomi⁶, Hiroki Kamehama⁶, Sumeet Shrestha⁶

¹ Department of Physics, Graduate School of Science, Kyoto University, Japan

² ISAS/JAXA, Japan

³ Institute of Particle and Nuclear Studies, High Energy Accelerator Research Org., KEK, Japan

⁴ Department of Applied Physics, Faculty of Engineering, University of Miyazaki, Japan

⁵ Department of Physics, Faculty of Science and Technology, Tokyo University of Science, Japan

⁶ Research Institute of Electronics, Shizuoka University, Japan

531 - (12:05) High Resolution X-ray Imaging with pnCCDs

Florian Schopper, Jelena Ninkovic, Rainer Richter, Thomas Selle, Johannes Treis, Gerhard Schaller

Halbleiterlabor der Max-Planck-Gesellschaft, Germany

Session 7 - Applications to Nuclear Monitoring

Tuesday, 13:55-14:35

Session Chair: Frédéric Carrel, CEA Tech, France

334 - (13:55) Development of a New Pinhole Camera for Imaging in High Dose Rate Environment

Koki Sueoka¹, Jun Kataoka¹, Miho Takabe¹, Yasuhiro Iwamoto¹, Makoto Arimoto¹, Masaki Yoneyama¹, Isao Yoda², Tatsuo Torii³, Yuki Sato³, Masaaki Kaburagi³, Yuta Terasaka³

¹ WASEDA University, Japan, ² Tokyo Institute of Technology, Japan, ³ JAEA, Japan

432 - (14:15) Second Generation of Portable Gamma Camera Based on Caliste CdTe Hybrid Technology

Daniel Maier¹, Pierre-Anne Bausson², Claire Blondel¹, Frédéric Carrel³, Geoffrey Daniel¹, Carole Force³, Olivier Gevin², Hermine Lemaire³, Olivier Limousin¹, Jérôme Martignac¹, Aline Meuris¹, Vincent Schoepf³, Fabrice Soufflet⁴, Marie-Cécile Vassal⁴, François Visticot¹

¹ CEA Saclay IRFU/DAP France, ² CEA/Saclay IRFU/DEDIP, France, ³ CEA Saclay LIST/LCAE, France, ⁴ 3D plus, France

Industrial Session I

Tuesday, 14:35-15:35

Session Chair: Alan Owens, ESA, The Netherlands

(14:35) Hamamatsu

(14:42) SensL

(14:49) CEA Tech

(14:56) Nuvia

(15:03) CAEN

(15:10) IMS/SDS

(15:17) Photek

(15:24) Ketek

Poster Session I - Le Rosé

Tuesday, 15:35-16:45

Session Chair: Jean-Charles Vanel, CNRS-LPICM-Ecole Polytechnique, France

Medical Applications

377 - Simulation and Optimization of the Cherenkov TOF Full-body PET Scanner

Marharyta Alohkhina^{1,2}, Clotilde Canot¹, Oleg Bezshyyko², Igor Kadenko², Gerard Tauzin¹, Dominique Yvon¹, Viatcheslav Sharyy²

¹ CEA/IRFU, Université Paris/Saclay, France, ² Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

426 - Calibration and Characterization of SiPM for Prompt Gamma Imaging Applications

Veronica Regazzoni^{1,2}, Fabio Acerbi¹, Giulia Cozzi³, Carlo Fiorini³, Alberto Gola¹, Giovanni Paternoster¹, Claudio Piemonte¹, Daniele Rucatti⁴, Nicola Zorzi¹

¹ Fondazione Bruno Kessler, TIFPA, Trento, Italy, ² Università di Trento, Italy, ³ Politecnico di Milano, Italy, ⁴ Fondazione Bruno Kessler, Trento, Italy

605 - LaBr3:Ce and NaI:Tl Performance Comparison for Single Photon Emission Detector

Marco Bettiol¹, Enrico Preziosi², Cristian Borrazzo², Claudia Polito³, Maria Nerina Cinti², Rosanna Pellegrini², Roberto Pani⁴

¹ Department of Radiotherapy, Campus Bio-Medico University, Rome, Italy, ² Department of Molecular Medicine, Sapienza University of Rome, Rome, Italy, ³ Morphogenesis and tissue Engineering, Doctorate School of Biology and Molecular Medicine - SAIMLAL Department, Sapienza University of Rome, Rome, Italy, ⁴ Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome, Rome, Italy

627 - Development of Tl-doped Cs2HfCl6 Scintillator

Shunsuke Kurosawa, Shohei Kodama, Akihiro Yamaji, Yuui Yokota, Yasuhiro Shoji, Yuji Ohashi, Kei Kamada, Akira Yoshikawa, Akimasa Ohnishi, Mamoru Kitaura, Martin Nikl

Tohoku University and Yamagata University, Japan

Applications to Nuclear Monitoring

398 - The Muon Portal Project: Commissioning of the Full Detector and First Results

Riggi Francesco

Department of Physics and Astronomy, and INFN, Catania, Italy

537 - Development of a Portable Gamma Imaging System for Absorbed Radiation Dose Control in Targeted Radionuclide Therapy

Carlotta Trigila¹, M.A. Verdier², A. Desbrée³, G. Hull⁴, C. Esnault¹, L. Pinot¹, Y. Charon¹, M-A. Duval¹, L. Ménard¹

¹ IMNC CNRS/IN2P3, Univ. Paris Sud et Paris Diderot, Orsay, France, ² Univ. Paris-Diderot, Sorbonne Paris Cité, IMNC CNRS/IN2P3, Orsay, France, ³ Laboratory of Internal Dose Assessment, IRSN, Fontenay-aux-roses, France, ⁴ Institut de Physique Nucléaire, CNRS-IN2P3, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France

■ Applications to Physics

359 - Astroparticle Physics with Newly Developed Inorganic Scintillator

Takashi Iida¹, Kei Kamada², Takaki Ohata¹

¹ Osaka University, Japan, ² Tohoku University, Japan

385 - IGOsSat – A 3U Cubesat For Measuring The Radiative Content In Low-Earth Orbit And Ionosphere

Hien Phan¹, Hubert Halloin¹, Philippe Laurent²

¹ APC, Paris, France, ² CEA/IRFU, Université Paris/Saclay, France

555 - A SiPM-based Detection Module for 1” and 2” LaBr3:Ce Scintillators for Nuclear Physics Applications

Giulia Cozzi^{1,2}, Marco Carminati^{1,2}, Carlo Fiorini^{1,2}, Alberto Gola³, Claudio Piemonte³, Veronica Regazzoni^{3,4}, Franco Camera^{2,5}, Giovanni Paternoster³, Fabio Acerbi³

¹ Politecnico di Milano, Milano, Italy, ² INFN, Milano, Italy, ³ Fondazione Bruno Kessler, Trento, Italy, ⁴ Università degli studi di Trento, Trento, Italy, ⁵ Università degli studi di Milano, Milano, Italy

591 - Development of a New Class of Scintillating Fibres with Very Short Decay Time and High Light Yield

Laura Gavardi¹, Ana Barbara R. Cavalcante², Lukas Gruber³, Christian Joram³, Sergei Ponomarenko⁴, Osamu Shinji⁵

¹ TU Dortmund, Germany, ² CBPF, Rio de Janeiro, Brazil, ³ CERN, PH Department, Switzerland, ⁴ Enikolopov Institute of Synthetic Polymeric Materials of the Russian Academy of Sciences, Moscow, Russian Federation, ⁵ Kuraray Trading CO., LTD., Methacrylic Development Department, Tokyo, Japan

628 - High Precision, Low Disturbance Calibration of the High Voltage System of the CMS Barrel Electromagnetic Calorimeter

Badder Marzocchi

Univerità Roma I and INFN-Roma, Italy

■ Front-end Electronics

342 - The Current Mode Time-over-Threshold ASIC for a MPPC Module in a TOF-PET system

Tadashi Orita¹, Masao Yoshino², Naoki Nakata³, Akihiro Koyama³, Kenji Shimazoe³, Kei Kamada², Hirotaka Sugawara⁴, Hiroyuki Takahashi³

¹ Okinawa Institute of Science and Technology Graduate University, Japan, ² C&A, Japan, ³ Department of Nuclear Engineering and Management, The University of Tokyo, Japan, ⁴ Advanced Medical Instrumentation Unit, Okinawa Institute of Science and Technology Graduate University, Japan

550 - ASTRE : Asic with Switched Capacitor Array (SCA) and Trigger for Detector Readout Electronics Hardened against SEL

David Baudin, Pascal Baron, Alain Delbart, Denis Bernard

CEA/IRFU, Université Paris/Saclay, France

590 - Circuit Design for Large Area Imaging Atmospheric Cherenkov Telescope SiPM Detectors

David Fink, Alexander Hahn, Razmik Mirzoyan

Max Planck Institut fuer Physik, Germany

663 - SPACIROC3: a Low Power 100MHz Photon Counting ASIC for Cosmic Ray

■ Observatory

Sylvie Blin, Frédéric Dulucq, Christophe De La Taille, Damien Thienpont

OMEGA - Ecole Polytechnique/CNRS-IN2P3, France

■ Pixelated Detectors

388 - 10 MeV Proton Irradiation of X-Ray Silicon Detectors to Study Performance Degradation in Low-Earth Orbit

Francesco Ceraudo¹, Aline Meuris¹, Diana Renaud¹, Claire Blondel¹, Clément Raux¹, Pierre-Anne Bausson¹, Daniel Maier¹, Konrad Altenmüller², Bertrand Cordier¹

¹ CEA/IRFU, Université Paris/Saclay, France, ² Technische Universität München (TUM), Germany

586 - Advanced DEPFET Concepts: Quadropix

Alexander Baehr¹, Alexander Feller², Peter Lechner¹, Jelena Ninkovic¹, Rainer Richter¹, Florian Schopper¹, Johannes Treis¹

¹ MPG-HLL, München, Germany, ² MPS, Germany

■ SiPM Performance

343 - Performances of some SiPM Models for Cryogenic Applications

Tommaso Cervi¹, Maurizio Bonesini², Andrea Falcone³, Alessandro Menegolli¹, Gian Luca Raselli¹, Massimo Rossella¹, Marta Torti¹

¹ INFN sez. di Pavia, Italy, ² INFN Sez. Milano Bicocca, Italy, ³ University of Texas, USA

406 - Evaluation of the Ratio of Different Optical Cross Talk Paths in SiPM

Sabrina Löbner¹, Florian Wiest², Alicia Márquez Seco², Peter Iskra², Eugen Engelmann¹, Thomas Ganka², Wolfgang Gebauer¹, Walter Hansch¹, Reinhard Fojt²

¹ Universität der Bundeswehr München, Fakultät für Elektrotechnik und Informationstechnik, Germany, ² KETEK GmbH, München Germany

600 - Radiation Damage of Prototype SIPMs for the CMS HCAL Barrel Phase I Upgrade

Adriaan Heering, Yuri Musienko, Mitchell Wayne

University of Notre Dame, USA

■ SiPM System

321 - Detector Block Performance based on a Monolithic LYSO Crystal using a Novel Signal Multiplexing Method

Andrea González Montoro, Antonio Gonzalez

i3m-CSIC, Valencia, Spain

361 - Development of an LSI for a New Kind of Photon-Counting Computed Tomography Using Multi-Pixel Photon Counters

Makoto Arimoto¹, Hayato Morita¹, Tsubasa Ohshima¹, Jun Kataoka¹, Hideo Nitta², Hirokazu Ikeda³

¹ Waseda University, Japan, ² Hitachi Metals, Ltd., Japan, ³ Institute of Space and Astronautical Science, Japan

415 - Approximations of Coincidence Time Resolution Models of Scintillator Detectors with Leading Edge Discriminator

Vinogradov Sergey

Lebedev Physical Institute, Russia

276 - Progresses of Silicon Photomultiplier Technologies with Epitaxial Quenching Resistors

Dejun Han¹, Rhys Preston², Jiali Jiang³, Jianquan Jia³, Yi Liu², Kun Liang³, Ru Yang³
¹ Novel Device Laboratory, Beijing Normal University, China, ² CSIRO Mineral Resources, Australia, ³ Beijing Normal University, China

407 - An Interdigital SiPM with Coincidence Measurement for Rejection of Dark Noise

Yu Peng, Ruiheng Wang, Jianquan Jia, Tianqi Zhao, Kun Liang, Ru Yang, Dejun Han
 Beijing Normal University, China

548 - New Results on Ultra-High Cell-Density Silicon Photomultipliers with Improved Effective-Fill-Factor

Fabio Acerbi¹, Alberto Gola¹, Giovanni Paternoster¹, Yuri Musienko², Adriaan Heering², Nicola Zorzi¹, Claudio Piemonte¹
¹ Fondazione Bruno Kessler, TIFPA, Trento, Italy, ² University of Notre Dame and CERN, Switzerland

Vacuum Detectors

261 - Large Area Photodetectors for Next-Generation Sub-Glacial Cherenkov Neutrino Telescopes

Kael Hanson
 University of Wisconsin – Madison, USA

349 - Timing Properties of Hamamatsu R5912-MOD Photomultiplier Tube for the ICARUS T600 Light Detection System

Massimo Rossella¹, Marta Babicz², Vincenzo Bellini⁴, Maurizio Bonesini⁵, Tommaso Cervi^{1,3}, Andrea Falcone⁶, Alessandro Menegolli^{1,3}, Claudio Montanari¹, Gian Luca Raselli¹, Maura Spanu^{1,3}, Marta Torti^{1,3}, Francesco Tortorici⁴, Andrea Zani⁷
¹ INFN Sezione di Pavia, Italy, ² AGH University of Science and Technology, Krakow, Poland
³ University of Pavia, Italy, ⁴ University of Catania and INFN, Catania, Italy, ⁵ INFN Sezione di Milano Bicocca, Milano, Italy, ⁶ University of Texas at Arlington, Arlington, USA, ⁷ CERN, Geneva, Switzerland

380 - Multi-Anode Photomultiplier (MAPMT) Readout for High Granularity Calorimeters

Tigran Mkrtchyan
 A.Alikhanyan National Laboratory, Armenia

413 - New Photosensor Technology for Large-Area Applications

Daniel Ferenc¹, Marija Segedin Ferenc²
¹ University of California, Davis, USA, ² PhotonLab, Inc., USA

568 - Realization of a 1-inch VSiPMT: Preliminary Study and Measurements

Felicia Carla Tiziana Barbato², Giancarlo Barbarino¹, Luigi Campajola¹, Francesco Di Capua¹, Elisabetta Nocerino¹, Carlos Maximiliano Mollo², Antonio Valentini³, Daniele Vivolo¹
¹ Università degli Studi di Napoli “Federico II”, Italy, ² INFN - Sezione di Napoli, ³ Università degli Studi di Bari “Aldo Moro”, Italy

580 - Correlation between the Photoemissive and Morphological Properties of KBr Thin Film Photocathodes

Richa Raj, Bhartendu Kumar Singh
 Department of Physics, Banaras Hindu University, India

602 - Studies of Low Background PMTs for Low Energy Neutrino Experiments

Andrey Sidorenkov, Sultim Lubsandorzhiev
 Institute for Nuclear Research of the Russian Academy of Sciences, Russia

664 - HVPS for Phototubes with Very Low Power Consumption and High Dynamics

Philippe Gorodetzky¹, Jacek Szabelski², Jacek Karczmarczyk², Włodzimierz Marszał², Pierre Prat¹
¹ APC- Paris 7 University, France, ² NCBJ, Lodz, Poland

Session 8 - Applications to Physics I

Tuesday, 16:45-18:15

Session Chair: Xavier Michalet, UCLA, USA

553 - (16:45, invited) X-ray Coherent Diffraction Imaging: 2D and 3D Simulations

Jean Rinkel, X. Eduardo Miqueles
 Brazilian Synchrotron Light Laboratory/CNPEM, Campinas, SP, Brazil

329 - (17:15) Mini-phoswich and SiPM for Heavy Ion Detection

Diana Carbone, Paolo Finocchiaro, Luigi Cosentino, for the NUMEN Collaboration
 Istituto Nazionale di Fisica Nucleare - Laboratori Nazionali del Sud, Italy

337 - (17:35) The Large Area SiPMs Photon Detector in the nEXO Experiment

Xilei Sun
 IHEP, China

356 - (17:55) The PANDA Barrel-TOF Detector

Merlin Böhm, Albert Lehmann
 Uni Erlangen, Germany

Industrial Session II

Tuesday, 18:15-19:15

Session Chair: Frédéric Carrel, CEA Tech, France

(18:15) 3D plus

(18:22) HTDS

(18:29) Saint Gobain Cristaux

(18:36) Broadcom

(18:43) PETSys

(18:50) Laser Components

(19:00) Information on SENSE - A Horizon 2020 CSAction aiming to coordinate research and development efforts in low light level sensing

Katharina Henjes-Kunst
 DESY, Germany

Tutorial 4

Wednesday, 08:00-09:15

Session Chair: Olivier Limousin, CEA/IRFU, France

X and Gamma-Ray Detectors for Medical Applications

E. Gros d'Aillon

CEA/LETI, France

Session 9 - Medical Applications II

Wednesday, 09:15-10:15

Session Chair: Samo Korpar, University of Maribor, Slovenia

423 - (09:15) High Resolution CdTe Imaging Detector With Multi-Pinhole Optics for In-Vivo Molecular Imaging

Shin'ichiro Takeda¹, Tadashi Orita¹, Fumiki Moriyama¹, Yasuo Arai¹, Hirotaka Sugawara¹, Miho Katsuragawa², Sayuri Oshita², Goro Yabu², Shin Watanabe², Tadayuki Takahashi², Lars Furenli³

¹ Okinawa Institute of Science and Technology Graduate University, Japan, ² ISAS/JAXA, Japan,

³ The University of Arizona, USA

549 - (09:35) Performances Evaluation of an Intraoperative Positron Imaging Probe with Radioactive Phantoms

Marc-Antoine Verdier¹, Sara Spadola², Cedric Esnault², Laurent Pinot², Nicoleta Dinu³, Beng Yean Ky³, Dominique Breton³, Yves Charon¹, Marie-Alix Duval¹, Laurent Ménard¹

¹ Univ. Paris-Diderot, Sorbonne Paris Cité, IMNC CNRS/IN2P3, Orsay, France

² IMNC CNRS/IN2P3, Univ. Paris Sud et Paris Diderot, Orsay, France

³ LAL CNRS/IN2P3, Univ. Paris Sud, Université Paris-Saclay, Orsay, France

607 - (09:55) EasyPET for Preclinical: First Results of a System Demonstrator with SiPMs

João Veloso¹, Pedro Correia¹, Joana Menoita¹, Ana Silva¹, Fabiana Ribeiro¹, Nazar Romanyshyn¹, Ismael Castro², Filipe Alves², Pedro Encarnação², Fabiana Rodrigues², Ana Santos³, Carlos Ramos³, Francisco Caramelo³, Nuno Ferreira⁴, Diniz Sá⁴, Nuno Matela⁵, Pedro Almeida⁵, Pedro Sá⁵, Valentina Arosio⁶, Massimo Caccia⁶, Romualdo Santoro⁶

¹ i3N – Departamento de Física da Universidade de Aveiro, Portugal, ² RI-TE - Radiation

Imaging Technologies, Lda, Portugal, ³ Instituto de Biofísica/Biomatemática, Faculdade de

Medicina da Univ. de Coimbra, Portugal, ⁴ ICNAS, Instituto de Biofísica/Biomatemática,

Faculdade de Medicina da Univ. de Coimbra, Portugal, ⁵ Instituto Biofísica e Engenharia

Biomédica, Faculdade de Ciências, Universidade de Lisboa, Portugal, ⁶ Dipartimento di Scienza e Alta Tecnologia, Università degli Studi dell'Insubria, Italy

Session 10 - Applications for Cherenkov Telescopes Wednesday, 10:45-12:25

Session Chair: Eric Delagnes, CEA/IRFU, France

369 - (10:45) System Design and Signal Processing of the FlashCam Cherenkov Camera

Felix Werner

Max Planck Institute for Nuclear Physics, Germany

404 - (11:05) Light-Trap: A SiPM Upgrade for VHE Astronomy and Beyond

Daniel Guberman, Juan Cortina, John E. Ward
Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology, Spain

547 - (11:25) Integration and Calibration of the NectarCAM Camera for the Cherenkov Telescope Array

Patrick Sizun, Frédéric Louis, Floriane Thocquenne, Philippe Venault, Estelle Virique, for the Nectarcam Collaboration, CTA Consortium
CEA/IRFU, France

563 - (11:45) Assembly and Test of Photo-Detection Modules for the Schwarzschild Couder Medium Size Telescope Prototype for CTA

Francesco Giordano
University and INFN Bari, Italy

567 - (12:05) Evaluation of Silicon Photomultipliers for Dual-Mirror Small-Sized Telescopes of CTA

Hiroyasu Tajima¹, Akira Asano¹, David Berge², Giovanni Bonanno³, Mark Bryan², Ben Gebhardt⁴, Naoya Hidaka¹, Priyanka Kachru², Jon Lappington⁵, Steve Leach⁵, Yuki Nakamura¹, Akira Okumura¹, Giuseppe Romeo³, Duncan Ross⁵, Maurice Stephan², Hiroyasu Tajima¹, Richard White⁴, Nobuhito Yamane¹, Adrian Zink⁶
¹ Nagoya University, Japan, ² University of Amsterdam, The Netherlands, ³ INAF, Osservatorio Astrofisico di Catania, Italy, ⁴ Max-Planck-Institut für Kernphysik, Heidelberg, Germany, ⁵ University of Leicester, UK, ⁶ Universität Erlangen-Nürnberg

Session 11 - Vacuum Detectors I

Wednesday, 13:55-15:35

Session Chair: Eugenio Nappi, INFN Sezione di Bari, Italy

335 - (13:55) Latest Results from the TORCH R&D Project

Thierry Gys
CERN, Switzerland

357 - (14:15) Recent results with lifetime-enhanced Microchannel-Plate PMTs

Markus Pfaffinger
Universität Erlangen, Germany

363 - (14:35) Amorphous Silicon Based Microchannel Plate Detectors with High Multiplication Gain

Janina Löffler, Christophe Ballif, Nicolas Wyrsh
Ecole Polytechnique Fédérale de Lausanne (EPFL), Institute of Microengineering (IMT), Photovoltaics and thin film electronics laboratory (PVLAB), Switzerland

392 - (14:55) Performance Studies of Atomic Layer Deposited Microchannel Plate Electron Multipliers

Camden Ertley¹, Travis Curtis¹, Oswald Siegmund¹, Till Cremer², Christopher Craven², Mark Popecki², Michael Minor², Jeff Elam³, Anil Mane³

¹ University of California, Berkeley, USA, ² Incom Inc., USA, ³ Argonne National Laboratory, USA

393 - (15:15) Development of a New 2-inch Hybrid Photo-Detector using MPPC

Atsuhito Fukasawa¹, Yuji Hotta¹, Yasuharu Negi¹, Nakano Gaku¹, Shigeru Ichikawa¹, Takayasu Nagasawa¹, Yasuyuki Egawa¹, Akihiro Kageyama¹, F. C. T. Barbato², I. Campajola², R. De Asmundis², F. Di Capua², C. M. Mollo², E. Nocerino², D. Vivolo², Ichiro Adachi³,

Giancarlo Barbarino²

¹ Electron Tube Division, Hamamatsu Photonics K.K., Japan, ² Istituto Nazionale di Fisica Nucleare, Sez di Napoli, Italy, ³ KEK, Japan

Poster Session II - Le Blanc

Wednesday, 13:35-16:45

Session Chair: Rémi Chipaux, CEA/IRFU, Saclay, France

Medical Applications

327 - PET Detector Block with Accurate 4D Capabilities

Albert Aguilar, Andrea Gonzalez-Montoro, Efthimis Lamprou, Jose M Monzo, Gabriel Cañizares, Luis F. Vidal, Liczandro Hernandez, Pablo Conde, Sebastian Sancez, Filomeno Sanchez, Antonio J. Gonzalez, Jose M. Benlloch
Institute for Instrumentation in Molecular Imaging, i3M, Valencia, Spain

331 - Development of a Cost-Effective Compton Camera Using a Positron Emission Tomography Data Acquisition System

Yuto Nagao, Mitsutaka Yamaguchi, Naoki Kawachi, Hiroshi Watabe
National Institutes for Quantum and Radiological Science and Technology, Tohoku University, Japan

391 - Position and Depth of Interaction Measurements using Silicon PhotoStrip Detectors and a CsI(Tl) Crystal

Hyebin Jeon¹, Hyojung Hyun², Dongha Kah³, Kookhyun Kang¹, Bobae Kim¹, Seungcheol Lee¹, Hwanbae Park¹

¹ Dept. of Physics, Kyungpook National University, Daegu, South Korea, ² Pohang Accelerator Laboratory, South Korea, ³ Agency for Defense Development, Daejeon, South Korea

576 - drimPET: Assessment of DoI in LYSO Crystals using SiPMs and Wavelength Shifters

Pedro Correia, Nazar Romanyshyn, Ismael Castro, Pedro Quinta, Joao Veloso
University of Aveiro, Portugal

615- Development and Performance Evaluation of High Energy Resolution Compton-Pet Hybrid Detector Based on Ce:Gd3Ga2.7Al2.3O12 and Eu:SrI2 Scintillators

Masao Yoshino¹, Kei Kamada², Yasuhiro Shoji¹, Shunsuke Kurosawa², Yuui Yokota², Akira Yoshikawa¹, Kenji Shimazoe³, Hiroyuki Takahashi³, Kentaro Fujiwara³, Miwako Takahashi³, Toshimitsu Momose³, Akihiro Koyama³, Mizuki Uenomachi³, Naoki Nakada³

¹ Institute for Materials Research, Tohoku University, Japan, ² New Industry Creation Hatchery Center, Tohoku University, Japan, ³ Department of Nuclear Engineering and Management, The University of Tokyo, Japan

649 - Scintillating Fiber Optic Dosimeter for Brachytherapy: First Tests With a Breast Phantom

João Veloso¹, Luis Moutinho², Ismael Castro², Hugo Freitas², Joana Melo², Paulo Silva², Ana Gonçalves¹, Luis Peralta³, Sara Pinto⁴, Alexandre Pereira⁴, João Santos⁴, Maria Costa⁵

¹ i3N – Departamento de Física da Universidade de Aveiro, Portugal, ² NU-RISE, Aveiro, Portugal, ³ Faculdade de Ciências da Universidade de Lisboa, LIP, Portugal, ⁴ IPOPGF - Porto, Porto, Portugal, ⁵ APNOR - Associação de Politécnicos do Norte, Portugal

Applications: Nuclear Monitoring

399 - Development of an Easy and Simple Method to Measure Environmental

Radioactivity in a Forest with Efficient Personal Dosimeters

Keisuke Kurita¹, Mitsutaka Yamaguchi¹, Yuto Nagao¹, Nobuo Suzui¹, Yong-Gen Yin¹, Toshihiro Yoshihara², Naoki Kawachi¹

¹ National Institutes for Quantum and Radiological Science and Technology, Japan, ² Central Research Institute of Electric Power Industry, Japan

625 - Diamond X-ray Diagnostics

John Smedley
Brookhaven National Laboratory, USA

Applications to Physics

368 - Timing Detector with Scintillating Fibers for the Mu3e Experiment

Antoaneta Damyanova
University of Geneva, Switzerland

409 - Model Independent Characterization Method of Correlated Delayed Pulses for Any Photo-Detectors

Fabrice Retiere, Ben Smith
TRIUMF, Canada

575 - A Multi-Purpose Scintillating Fibre Beam Monitor for the CERN ProtoDUNE Beamline

Gerard Tranquille, Inaki Ortega-Ruiz, Jens Spanggaard, Alexandre Frassier
CERN, Switzerland

606 - Upgrade of the Monitoring System of LHCb ECAL

Yury Guz¹, Pascal Perret², Pavel Shatalov³, Victor Egorychev³, Vladimir Obratsov¹, Anatoli Zhokhov³, Sergey Philippov⁴, Sergii Kandybei⁵, Evgeny Chernov¹

¹ Institute for High Energy Physics (IHEP), Protvino, Russia, ² Université Blaise Pascal, CNRS/IN2P3, LPC, Clermont-Ferrand, France, ³ Institute of Theoretical and Experimental Physics (ITEP), Moscow, Russia, ⁴ Institute for Nuclear Research of the Russian Academy of Sciences (INRAN), Moscow, Russia, ⁵ NSC Kharkiv Institute of Physics and Technology (NSC KIPT), Kharkiv, Ukraine

634 - Performance of the CMS Precision Electromagnetic Calorimeter at the LHC Run II and Prospects for High-Luminosity LHC

Giulia Negro for the CMS collaboration
CEA/IRFU, Saclay, France

Front-end Electronics

354 - High-speed X-ray Imaging and Spectroscopy System with Zynq SoC for Solar Observations

Shin-Nosuke Ishikawa¹, Tadayuki Takahashi¹, Shin Watanabe¹, Noriyuki Narukage², Satoshi Miyazaki², Tadashi Orita², Shin'ichiro Takeda³, Masaharu Nomachi⁴, Shinya Saito⁵, Hiroaki Murakami⁶, Iwao Fujishiro⁷, Fumio Hodoshima⁷

¹ ISAS/JAXA, Japan, ² NAOJ, Japan, ³ OIST, Japan, ⁴ Osaka University, Japan, ⁵ Rikkyo University, Japan, ⁶ University of Tokyo, Japan, ⁷ Shimafuji Electric Inc., Japan

551 - Total Ionizing Dose measurements of Charge Sensitive Amplifier in 0.18 μm technology

David Baudin¹, Olivier Gevin¹, Olivier Limousin¹, Alicja Michalowska-Forsyth², François Daly¹, Rémi Chipaux¹

¹ CEA/IRFU, Saclay, France, ² Graz University, Austria

556 - Evaluation of TOFPET ASIC Performance with Microchannel Plate Photomultipliers

Stephen Leach¹, Jon Lapington¹, James Milnes², Tom Conneely², Ricardo Bugalho³, Stefaan Tavernier³

¹ University of Leicester, UK, ² Photek Ltd., UK, ³ PETsys Electronics, SA

612 - Calibration and Optimization of the CLAS12-RICH Front End Electronics

Matteo Turisini, Marco Contalbrigo
INFN Ferrara, Italy

Gaseous Detectors

341 - Neutron Imager with Glass Capillary Plate

Ryutaro Ito¹, Kento Suzuki², Satoshi Ishizawa¹, Yuichiro Inomata¹, Fuyuki Tokanai², Takayuki Sumiyoshi³, Haruyasu Kondo⁴, Hiroyuki Sugiyama⁴, Masahiro Hayashi⁴, Teruyuki Okada⁴, Seiji Tasaki⁵, Masahiro Hin⁵, Masanori Hirose⁵, Shunji Kishimoto⁶

¹ Graduate School of Science and Engineering, Yamagata University, Japan, ² Department of Physics, Yamagata University, Japan, ³ Graduate School of Science and Engineering, Tokyo Metropolitan University, Japan, ⁴ Electron Tube Division, Hamamatsu Photonics K.K., Japan, ⁵ Graduate School of Engineering, Kyoto University, Japan, ⁶ Institute of Material Structure Science, KEK, Japan

Pixelated Detectors

360 - The TRAMOS Pixel as a Photodetection Device: Design and Building Blocks

Nicolas Fourches¹, F. Lepretre², G. Gutierrez², François Jomard³, Y. Serruys², Vishant Kumar⁴
¹ CEA-Saclay, IRFU/SEDI/DePhyS, Université Paris-Saclay, France, ² CEA/DEN, Jannus, Université Paris-Saclay, France, ³ Université de Versailles Saint Quentin en Yvelines, Université Paris-Saclay, Versailles, France, ⁴ Centre de recherche sur les ions, les matériaux et la photonique, Caen, France

543 - Long-term Test of a Stacked CdTe Mini-HXI Setup

Daniel Maier, Benoit Horeau, Philippe Laurent, Olivier Limousin, Diana Renaud
CEA/IRFU, Service d'Astrophysique, France

SiPM Performance

346 - Radiation Hardness of Micropixel Avalanche Photodiodes with Super High Pixel Density

Ramil Akbarov¹, Farid Ahmadov², Gadir Ahmadov¹, Nikolay Zamyatin¹, Ziraddin Sadygov¹, Azar Sadigov², Anastasiya Shafronovskaya¹, Sergey Tyutyunnikov¹

¹ Joint Institute for Nuclear Research, Russia, ² National Nuclear Research Center, Azerbaijan

410 - Characterization of Silicon Photomultipliers for New High-Energy Space Telescopes

Karine Lacombe¹, Jürgen Knödseder¹, Baptiste Hourer¹, Thierry Gimenez², Pascale Ramon³
¹ IRAP CNRS, France, ² CNES, France, ³ IRAP UPS, France

571 - Characterization of SiPM Arrays in Different Series and Parallel Configurations

Alessandro Menegolli^{1,2}, Maurizio Bonesini⁴, Tommaso Cervi^{1,2}, Andrea Falcone^{3,2}, Gian Luca Raselli², Massimo Rossella², Marta Torti^{1,2}

¹ University of Pavia, Italy, ² INFN Pavia, Italy, ³ University of Texas at Arlington, USA, ⁴ INFN Milano Bicocca, Italy

609 - Radiation Hardness of Silicon Photomultipliers for CBM@FAIR, NA61@CERN

and BM@N Experiments

Vasily Mikhaylov¹, Fedor Guber², Alexander Ivashkin², Andrej Kugler¹, Vasily Kushpil¹, Sergey Morozov², Ondrej Svoboda¹, Pavel Tlusty¹

¹ Nuclear Physics Institute of CAS, Czech Republic, ² Institute for Nuclear Research of RAS, Czech Republic

SiPM System

330 - Silicon Photomultiplier and CsI(Tl) Scintillator In Application To Portable H*(10) Dosimeter

Yury Teverovskiy, Alexander Karakash, Pavel Buzhan
Scientific Production Company "Doza", Ltd, Russia

371 - A LYSO Crystal Mini-Calorimeter Readout by Silicon Photomultipliers as Compact Detector for Space Applications

Abaz Kryemadhi, Lindsey Barner, Andrew Grove, Jacob Mohler, Caleb Sisson, Alex Roth
Messiah College, Mechanicsburg, USA

560 - A Simple, Digital SiPM Based Setup for High Precision Time Correlated Single Photon Counting Experiments on Scintillators using e+/e- Annihilation Photons

Stefan Brunner, Dennis Schaart
TU Delft, Netherlands

SiPM Technologies

328 - Temperature-Compensated Silicon Photomultiplier

Evgeny Kuznetsov
University of Alabama in Huntsville, USA

Vacuum Detectors

324 - Determination of Scintillator Decay Time by Autocorrelation Method

Vladimir Morozov
JINR, Russia

355 - Simulating Multi-channel Vacuum Phototriodes using COMSOL

Zahid Zahid¹, David J. A. Cockerill², Peter R. Hobson¹
¹ Brunel University London, UK, ² Rutherford Appleton Laboratory, UK

389 - Photoelectron Backscattering in Microchannel Plate Photomultiplier Tube

Ping Chen, Jinshou Tian, Hulin Liu, Yonglin Wei, Lehui Guo
Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China

418 - An Active High QE Photocathode

Harry Van Der Graaf
Nikhef and TU Delft, Netherlands

572 - Refractive Index of CsI Thin Films from Energy Gaps

Bhartendu Kumar Singh
Banaras Hindu University, India

594 - The TORCH Microchannel Plate detector – Status and Prospects

Thomas Conneely¹, James Milnes¹, Chris Slatter¹, Nicholas Brooks², David Cussans³, Maarten Van Dijk⁴, Klaus Föhl⁵, Roger Forty⁵, Christoph Frei⁵, Rui Gao⁴, Lucia Castillo Garcia⁵, Thierry Gys⁵, Neville Harnew⁴, D. Piedigrossi⁵, J. Rademacker⁵

¹ Photek LTD, UK, ² University of Bath, UK, ³ University of Bristol, UK, ⁴ University of Oxford,

UK, ⁵ CERN, Switzerland

603 - Vacuum Photomultipliers Behavior at Lowest Thresholds, Photoelectron Backscattering and Photon Detection Efficiency

Sultim Lubsandorzhiyev, Andrey Sidorenkov, Bayarto Lubsandorzhi
Institute for Nuclear Research of the Russian Academy of Sciences, Russia

681 - The Status of the R&D of the 20 inch MCP-PMT in China

Sen Qian
IHEP, CAS, China

Tutorial 5

Thursday , 08:00-09:15

Session Chair: Rémi Chipaux, CEA/IRFU, France**Scintillator Detectors**

G. Hull

IN2P3/IPNO, France

Session 12a - SiPM Systems I

Thursday , 09:15-09:35

Session Chair: Véronique Puill, IN2P3/LAL, Orsay, France**412 - (09:15) New Sensor Developments for ToF LiDAR Applications**Deborah Herbert, Carl Jackson, Liam Wall, Paul Daly, John Murphy

SensL Technologies Ltd, Ireland

Session 13 - Noble Liquid Detectors

Thursday , 09:35-10:15

Session Chair: Thomas Patzak, IN2P3/APC, Paris, France**402 - (09:35) XEMIS2: A Liquid Xenon Detector for Small Animal Medical Imaging**

Lucia Gallego Manzano¹, Mounir Abaline², Stephane Acounis³, Nicolas Beaupere³, Stephane Bouvier³, Pierre Briend⁴, James Buttleworth⁴, Thomas Carlier⁵, Herve Chanal², Michel Cherel⁶, Jean-Pierre Cussonneau³, Mokrane Dahoumane⁷, Jerome Idier⁸, Françoise Kraeber-Bodere³, Patrick Le Ray³, Frederic Lefevre³, Samuel Manen², Julien Masbou³, Herve Mathez⁹, Eric Morteau³, Nicolas Pillet², Didier Roy³, Martin Staempfli⁴, Jean-Sebastien Stutzmann³, Loick Virone³, Yajing Xing³, Yuwei Zhu³, Dominique Thers³, Laurent Royer²

¹ Subatech/CNRS, France, ² IN2P3/LPC Clermont-Ferrand, France, ³ SUBATECH, Ecole des Mines de Nantes, CNRS/In2p3, Université de Nantes, France, ⁴ AIR LIQUIDE Advanced Technologies Division, France, ⁵ Centre Hospitalier Universitaire de Nantes, France, ⁶ INSERM U1232 équipe 13, France, ⁷ IPNL Université de Lyon, CNRS/IN2P3 UMR5822, France, ⁸ LS2N, Ecole Centrale de Nantes, CNRS/Inp, Université de Nantes, France, ⁹ IPNL Université de Lyon, France

387 - (09:55) MEG II Liquid Xenon Scintillation Calorimeter to Detect 52.8MeV γ with Large Area VUV-Sensitive MPPCs

Toshiyuki Iwamoto

The University of Tokyo, Japan

Session 14 - Gaseous Detectors

Thursday , 10:45-12:30

Session Chair: Fabio Sauli, CERN, Switzerland**Review Talk - (10:45) Status and Perspectives of the Gaseous Photon Detectors****Technologies**Fulvio Tessarotto

INFN, Italy

400 - (11:30) HARPO, a TPC for Gamma Polarimetry above 1 MeV

Paul Colas

CEA/IRFU Université Paris Saclay, France

373 - (11:50) Novel MPGD based Detectors of Single Photons for COMPASS RICH-1 Upgrade

Shuddha Shankar Dasgupta

INFN Trieste, Italy

425 - (12:10) Caliste-MM: Soft X-Ray Polarimetry Measurements in a Synchrotron Facility with a New Concept of Gaseous Detector for Astrophysics Observations

Paul Serrano, Esther Ferrer Ribas, David Attié

CEA/IRFU Université Paris Saclay, France

Session 15- Vacuum Detectors II

Thursday , 14:00-15:20

Session Chair: Thierry Gys, CERN, Switzerland

421 - (14:00) Planar Microchannel Plate Photomultiplier with Full Range Response and Pixelated Readout for Fast Timing and Imaging Applications

Junqi Xie, Anil Mane, Robert Wagner, Edward May, Jingbo Wang, Jeffrey Elam, Mickey Chiu, Lei Xia, Marcel Demarteau
Argonne National Laboratory, USA

422 - (14:20) he Tynode: a New Vacuum Electron Multiplier for Ultra Fast Pixelised Particle Detectors

Harry Van Der Graaf

Nikhef and TU Delft, The Netherlands

597 - (14:40) Design of Large Area MCP-PMT

Ping Chen, Jinshou Tian, Hulin Liu, Yonglin Wei, Xiaofeng Sai, Lehui Guo

Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China

650 - (15:00) Study of PMT Performance in the High Dynamic Range at LHAASO

Xin Li

University of Science and Technology of China, China

Poster Session III - Le Rouge

Thursday , 15:20-16:30

Session Chair: Philippe Bourgeois, CEA/IRFU, Saclay, France

Applications to Cherenkov Telescopes

395 - Evaluation of Light Concentrators for Cameras of the Medium-sized Telescopes of the Cherenkov Telescope Array

Sabina Puerckhauer, German Hermann, Felix Werner

Max Planck Institute for Nuclear Physics Heidelberg, Germany

Medical Applications

372 - Imaging Performances of a small FoV Gamma Camera based on CRY018 Scintillation Crystal

Claudia Polito¹, Renato Pani², Viviana Frantellizzi³, Giuseppe De Vincentis³, Rosanna Pellegrini⁴, Roberto Pani⁵

¹ *Morphogenesis and tissue Engineering — SAIMLAL Department, Sapienza University, Rome,*

Italy, ² *Department of Physics, Sapienza University, Rome, Italy,* ³ *Department of Radiological Oncological and Anatomopathological Sciences, Sapienza University, Rome, Italy,* ⁴ *Department of Molecular Medicine, Sapienza University, Rome, Italy,* ⁵ *Department of Sciences and Medical and Surgical Biotechnologies, Sapienza University, Rome, Italy*

414 - Performance Improvement Tests of a Compton Telescope based on Continuous Crystals and SiPMs

John Barrio, Ane Etxebeste, Carlos Lacasta, Enrique Muñoz, Josep F. Oliver, Ana Ros, Carles Solaz, Gabriela Llosá

IFIC - CSIC/UV, Valencia, Spain

589 - Study on Linear Scanner using Low Energy X-ray

Hojong Chang, Gyuseong Cho, Hyunduk Kim

Integrated Sensors Team, Institute for Information Technology Convergence, KAIST, South Korea

626 - Growth of Large Area Tb:GdAlO₃/a-Al₂O₃ Eutectic Scintillator for X-ray Talbot-Lau Imaging Applications

Kei Kamada¹, Hiroaki Yamaguchi², Akihiro Yamaji², Yuji Ohashi³, Yasuhiro Shoji², Akira Yoshikawa²

¹ *NICHE, Tohoku University, Japan,* ² *IMR, Tohoku University, Japan,* ³ *Tohoku University, Japan*

Applications to Nuclear Monitoring

353 - Study of Silicon Photodiode Performances for X-ray Detector in Cargo System

Seungcheol Lee, Hwanbae Park, Hyebin Jeon, Kookhyun Kang

Kyungpook National University, Daegu, Korea

525 - Performance Evaluation of a Sensing Plate to Measure Transversal Surface Dose Distributions of Diagnostic X-ray Beams

Wook Jae Yoo, Yu Jeung Heo, Yeeun Eom, Kyoung Won Jang

Biomedical Engineering, Division of ICT Convergence Engineering, Konkuk University, South Korea

Applications to Physics

348 - The Upgraded Calibration System for the Scintillator-PMT Tile Hadronic Calorimeter of the ATLAS Experiment at CERN/LHC

Dhiman Chakraborty

Northern Illinois University, USA

384 - SENSE - a Roadmap for the Ideal Low Light Level Sensor Development

Hiroyasu Ajima⁶, Giovanni Bonanno⁷, Hans-Christian Schultz-Coulon⁸, Wei Shen⁸, Teresa Montaruli³, Domenico Della Volpe³, Andrii Nagai³, Matthieu Heller³, Razmik Mirzoyan⁴, Andreas Haungs⁵, Katharina Henjes-Kunst¹, Thomas Berghöfer², Hiroyasu Tajima⁶, Giovanni Bonanno⁷

¹ *DESY, Germany / Coordinator of SENSE,* ² *DESY, Germany,* ³ *UNIGE, Switzerland,* ⁴ *MPP MPG, Germany,* ⁵ *KIT, Germany,* ⁶ *Nagoya University, Japan,* ⁷ *INAF, Catania Astrophysical Observatory, Italy,* ⁸ *University of Heidelberg, Germany*

459 - Response of a Telescope Proton Recoil Spectrometer based on a YAP:Ce Scintillator to 20-80 MeV Protons for Applications to Measurements of the Fast Neutron Spectrum at the ChipIr Irradiation Facility

Song Feng¹, Carlo Cazzaniga², Triestino Minniti², Massimo Nocente¹, Christopher Frost², Giuseppe Gorini¹, Andrea Muraro¹, Stefano Romano³, Marco Tardocchi⁴

¹ Università degli Studi di Milano-Bicocca, Italy, ² ISIS Facility, Science and Technology Facilities Council, Rutherford Appleton Laboratory, UK, ³ Istituto Nazionale di Fisica Nucleare, Laboratori Nazionali del Sud, Italy, ⁴ Istituto di Fisica del Plasma “P. Caldirola”, Italy

578 - A Compact, Fast, Low Energy Gamma Ray Detector, Insensitive to High Magnetic Fields

Philippe Legou, Michel Combet, Pascal Le Boulout, Xavier Coppolani, Daniel Desforge
CEA/IRFU, Saclay, France

608 - Hadron Calorimeter (PSD) with Silicon Photo-Detectors in NA61 Experiment at CERN

Sergey Morozov¹, Fedor Guber¹, Alexander Ivashkin¹, Marina Golubeva¹, Oleg Petukhov¹, Alexander Izvestny¹, Vasily Mikhaylov²

¹ Institute for Nuclear Research RAS, Russia, ² Czech Technical University in Prague, Czech Republic

636 - Predicting the Performance of the CMS Precision PbWO₄ Electromagnetic Calorimeter in the HL-LHC Era from Test Beam Results on Irradiated Crystals

Kristof Pauwels, for the CMS experiment
INFN Milano-Bicocca, Italy

Fast Timing

582 - Single Photon Detector Package with Femtosecond Limiting Precision and Stability

Josef Blazej, Ivan Prochazka, Jan Kodet
Czech Technical University in Prague, Czech Republic

Front-end Electronics

382 - Performance of Integrated Read-Out Electronics based on SPIROC2b Chip for ECAL in CEPC

Shensen Zhao
USTC, State Key Laboratory of Particle Detection and Electronics, China

623 - Package Influence on High-Resolution Timing Chip Performances

Vera Stankova, Konrad Briggel, Wei Shen, Yonathan Munwes, Huangshan Chen, Hans-Christian Schultz-Coulon
Kirchhoff-Institut für Physik, Heidelberg University, Germany

Gaseous Detectors

386 - Evaluation of the Communication Performance in the New GEM based Soft X-ray Measurement System

Pawel Linczuk¹, Wojciech Zabolotny², Andrzej Wojenski², Rafal Krawczyk², Maryna Chernyshova¹, Krzysztof Pozniak², Tomasz Czarski¹, Michal Gaska², Grzegorz Kasproicz², Ewa Kowalska-Strzeciwillk¹, Karol Malinowski¹

¹ Institute of Plasma Physics and Laser Microfusion, Warsaw, Poland

² Institute of Electronic Systems, Warsaw University of Technology, Warsaw, Poland

Pixelated Detectors

364 - Silicon Drift Detector Prototypes for the keV-Scale Sterile Neutrino Search with TRISTAN

Konrad Altenmüller¹, Tobias Bode², Olivier Gevin³, Marc Korzeczek⁴, Thierry Lasserre^{3,1},

Olivier Limousin³, Daniel Maier³, Susanne Mertens², Martin Slezak²

¹ Technical University of Munich, Germany, ² Max Planck Institute for Physics, Germany, ³ CEA/IRFU, Saclay, France, ⁴ Karlsruhe Institute of Technology, Germany

SiPM Performance

339 - Evaluation of a Reliable and Cost-Effective PDE Measurement Setup with Short Cycle Time for SiPM Production Monitoring

Wolfgang Gebauer¹, Christoph Dietzinger², Eugen Engelmann¹, Thomas Ganka², Peter Iskra², Sabrina Löbner¹, Alicia Márquez Seco², Florian Wiest², Nikolay Pavlov³, Reinhard Fojt², Walter Hansch¹

¹ Universität der Bundeswehr München, Department of Electrical Engineering and Information Technology, Institute for Physics, Germany, ² KETEK GmbH, Germany, ³ NDEVICES Ltd., Germany

383 - Performance of SiPMs in the Non-Linear Region

Jaime Rosado
Universidad Complutense de Madrid, Spain

535 - Development and Characterization of Sub-mm 64-channel Silicon Photo Multiplier Prototype for Use in Photon Counting CT

Akihiro Koyama¹, Kenji Shimazoe¹, Florian Wiest², Peter Iskra², Thomas Ganka⁴, Masao Yoshino³, Kei Kamada³, Hiroyuki Takahashi¹

¹ The University of Tokyo, Japan, ² KETEK GmbH, Germany, ³ Tohoku University, Japan

⁴ Bundeswehr University Munich, Germany

598 - Gain Stabilization and Noise Minimization for SiPMs at Cryogenic Temperatures

Patrick Achenbach, Maik Biroth
Johannes Gutenberg-Universität Mainz, Germany

616 - Study and Modelling of Irradiated Solid-State Photomultipliers (SSPMs)

Yuri Musienko^{1,2}, Adriaan Heering¹, Anton Karneyeu², Vladimir Postoev², Randal Ruchti¹, Mitchell Wayne¹

¹ University of Notre Dame, USA, ² NR RAS, Moscow, Russia

SiPM System

350 - The Detection of Vacuum Ultraviolet Light by Means of SiliconPM for High Energy Physics Experiments

Massimo Rossella¹, Maurizio Bonesini², Tommaso Cervi³, Andrea Falcone⁵, Alessandro Menegolli³, Marco Cesare Prata³, Gian Luca Raselli⁴, Maura Spanu³, Marta Torti³

¹ INFN Sezione di Pavia, Italy, ² INFN Sezione di Milano Bicocca, Milano, Italy, ³ University of Pavia and INFN, Pavia, Italy, ⁴ INFN Sezione di Pavia, Pavia, Italy, ⁵ University of Texas at Arlington, Arlington, USA

374 - Optimised Silicon-Photomultiplier Based Gamma-Ray Spectrometer for Measurements of Bremsstrahlung Emission from Runaway Electrons in Tokamak Plasmas

Davide Rigamonti¹, Massimo Nocente¹, Luca Giacomelli², Giuseppe Gorini¹, Andrea Muraro², Marica Rebai¹, Marco Tardocchi²

¹ Dipartimento di Fisica “G. Occhialini”, Università degli Studi di Milano-Bicocca, Milano, Italy, ² Istituto di Fisica del Plasma “P. Caldirola”, CNR, Milano, Italy

SiPM Technologies

344 - Performance of the New Generation of Micropixel Avalanche Photodiodes with High Pixel Density and Photon Detection Efficiency

Sebuhi Nuruyev¹, Farid Ahmadov², Gadir Ahmadov¹, Ramil Akbarov¹, Ziraddin Sadygov¹, Azer Sadygov

¹ Joint Institute for Nuclear Research, Russia, ² National Nuclear Research Centre, Azerbaijan

533 - On Iterative Model of Performance of Micropixel Avalanche Photodiodes

Farid Ahmadov¹, Fatali Abdullayev¹, Ramil Akberov², Gadir Ahmadov¹, Sergey Khorev³, Sebuhi Nuriyev², Ziraddin Sadygov², Azer Sadigov¹, Samir Suleymanov¹

¹ Azerbaijan National Academy of Sciences-National Nuclear Research Centre, Azerbaijan, ² Joint Institute for Nuclear Research, ³ Zecotek Photonics Pte, Ltd.

Vacuum Detectors

257 - Cherenkov and Scintillation detectors with MCP-PMT and SiPM Readout for MPD and BM@N Experiments at JINR

Vladimir Yurevich

Joint Institute for Nuclear Research (JINR), Russia

325 - Time Correlation of Noise Pulses in a PMT

Natalia Morozova

Joint Institute for Nuclear Research (JINR), Russia

379 - The Atlas Tile Calorimeter Experience with 10000 Readout Photomultipliers Operating since the Start of the p-p Collisions at LHC

Hadar Lazar

Chicago University, USA

403 - Characterization of the Hamamatsu PMTs for the KM3NeT Project

Carlos Maximiliano Mollo, Pasquale Migliozi for the KM3NET Collaboration

Istituto Nazionale di Fisica Nucleare, sez. di Napoli, Italy

557 - Comparison of Performance Measurements and Simulations of a Very Fast Vacuum Photodiode

Jon Lapington¹, James Milnes², Colin Horsfield³

¹ University of Leicester, UK, ² Photek Ltd., UK, ³ Atomic Weapons Establishment, UK

573 - First Results from Production Testing of 64-channel MaPMT R13742 (1in) and R13743 (2in) for the LHCb RICH Upgrade

Silvia Gambetta

University of Edinburgh, UK

595 - Development of MCP based Time-of-flight Detector

Mikhail Barnyakov¹, Evgeniy Pyata¹, Vladimir Blinov¹, Viktor Bobrovnikov¹, Andrey Bykov¹, Valentin Ivanov², Alexandr Katcin¹, Elena Mamoshkina¹, Ivan Ovtin¹, Sergei Pivovarov¹, Vyacheslav Prisekin¹, Alexander Barnyakov¹

¹ Budker Institute of Nuclear Physics, Russia, ² Institute of Computational Technologies, Russia

621 - Single Large Area Photodetector and Multi Small PMTs Approaches in Photon Detection for Large-Scale Astroparticle Physics Experiments

Bayarto Lubsandorzhiiev

Institute for Nuclear Research of the Russian Academy of Sciences, INR, Russia

Session 16 - Front-End Electronics

Thursday, 16:30-18:15

Session Chair: Olivier Gevin, CEA/IRFU, Saclay, France

Review Talk - (16:30) Detection Limits of Front-end IC Architectures for Hybrid Imaging X-Ray Detectors

Alicja Michalowska-Forsyth

Graz University of Technology, Austria

366 - (17:15) PACIFIC: SiPM Readout ASIC for LHCb Upgrade

José Mazorra De Cos¹, Albert Comerma Montells², David Gascón Fora³, Sergio Gómez³, Han Xiaoxue², Nicolas Pillet⁴, Hervé Chanal⁴

¹ Instituto de Física Corpuscular (CSIC-UV), Spain, ² Physikalisches Institut Heidelberg, Germany, ³ Institute of Cosmic Science (ICC-UB), Spain, ⁴ Laboratoire de Physique Corpusculaire (CNRS/IN2P3), France

579 - (17:35) Experimental Results with TOFPET2 ASIC

Agostino Di Francesco¹, Ricardo Bugalho², Luis Ferramacho², Manuel Rolo³, Jose Carlos Silva^{2,1}, Rui Silva^{2,1}, Miguel Siveira², Stefaan Tavernier^{2,4}, Joao Varela^{2,1}

¹ LIP (Laboratório de Instrumentação e Física Experimental de Partículas), Portugal, ² PETsys Electronics, Portugal, ³ INFN Torino, Italy, ⁴ Vrije Universiteit Brussel, Belgium

583 - (17:55) SIPHRA 16-Channel SiPM Readout ASIC

Dirk Meier, Joerg Ackermann, Alf Olsen, Hans Berge, Amir Hasanbegovic, Altan Mehmet, Suleyman Azman, Jahanzad Talebi, Philip Pahlsson, David Steenari, Arne Fredriksen, Petter Oya, Tor Magnus Johansen, Codin Gheorghe, Timo A. Stein, Gunnar Maehlum

IDEAS - Integrated Detector Electronics AS, Norway

Session 12b - SiPM Systems II

Friday, 09:00-09:20

Session Chair: Véronique Puill, IN2P3/LAL, Orsay, France

401 - (08:50) Shashlik Calorimeter with Embedded SiPMs for the ENUBET Project

Valerio Mascagna¹, Alessandro Berra¹, Giovanni Ballerini¹, Claudia Brizzolari^{1,2}, Stefano Cecchini³, Franco Chignoli^{4,2}, Federico Cindolo³, Gianmaria Collazuol⁵, Enrico Conti^{5,6}, Claudia Caterina Delogu^{4,2}, Alberto Gola⁷, Cecile Jollet⁸, Andrea Longhin^{6,9}, Lucio Ludovici¹⁰, Gianni Mandrioli³, Anselmo Margotti³, Nicoletta Mauri³, Roberto Mazza^{4,2}, Anselmo Mereaglia⁸, Giulio Orzan¹¹, Alessandro Paoloni⁹, Michelangelo Pari^{5,6}, Laura Pasqualini^{12,3}, Giovanni Paternoster⁷, Laura Patrizii⁶, Claudio Piemonte⁷, Michele Pozzato³, Antonella Pugliese¹, Fabio Pupilli⁹, Michela Presti^{1,4}, Gabriele Sirri³, Mattia Soldani¹, Francesco Terranova^{4,2}, Erik Vallazza¹¹, Lucia Votano⁹

¹ Università degli Studi dell'Insubria, Italy, ² INFN Milano Bicocca, Italy, ³ INFN Sezione di Bologna, Italy, ⁴ Università degli Studi di Milano Bicocca, Italy, ⁵ Università degli Studi di Padova, Italy, ⁶ INFN Sezione di Padova, Italy, ⁷ Fondazione Bruno Kessler, Trieste, Italy, ⁸ IPHC, Université de Strasbourg - CNRS/IN2P3, France, ⁹ INFN Laboratori Nazionali di Frascati, Italy, ¹⁰ INFN Sezione di Roma 1, Italy, ¹¹ INFN Sezione di Trieste, Italy, ¹² Università degli Studi di Bologna, Italy

Session 17 - Pixelated Detectors II

Friday, 09:20-10:20

Session Chair: Tadayuki Takahashi, ISAS/JAXA, Japan

622 - (09:20) Development of Si-CMOS Hybrid Detectors toward Electron Tracking Semiconductor Compton Cameras

Hiroki Yoneda¹, Shin'ya Saitoh², Shin Watanabe¹, Tadayuki Takahashi¹

¹ ISAS/JAXA and University of Tokyo, Japan, ² Rikkyo University, Japan

666 - (09:40) CMOS Camera for Space Applications

Charles Sellier, Didier Gambart

3D Plus, France

429 - (10:00) Logarithmic Front Side Electron Bombarded CMOS Image Sensor

Yang Ni

New Imaging Technologies SA, France

Session 18 - SiPM Performance

Friday, 10:45-12:25

Session Chair: Yuri Musienko, Univ. of Notre Dame, USA, and INR RAS, Moscow, Russia

347 - (10:45) Investigation of Radiation Hardness of SiPM Exploiting the Effect of Hot Carrier Luminescence

Eugen Engelmann¹, Florian Wiest², Dan Sporea³, Andrei Stancalie³, Daniel Negut⁴, Erika Garutti⁵, Walter Hansch¹

¹ Institute of Physics, Universität der Bundeswehr München, Neubiberg, Germany, ² Ketek GmbH, Munich, Germany, ³ National Institute for Laser, Plasma and Radiation Physics, Center for Advanced Laser Technologies, Magurele, Romania, ⁴ National Institute of Physics and Nuclear

Engineering, IRASM, Magurele, Romania, ⁵ Institute for Experimental Physics, University of Hamburg, Hamburg, Germany

375 - (11:05) Comparison between Large Area PMTs and SiPM Arrays Deployed in a Liquid Argon Time Projection Chamber at CERN

Tommaso Cervi¹, Marta Ewelina Babicz², Maurizio Bonesini³, Andrea Falcone⁴, Umut Kose⁵, Marzio Nessi⁵, Alessandro Menegolli¹, Francesco Pietropaolo⁶, Gian Luca Raselli¹, Massimo Rossella¹, Marta Torti¹, Maura Spanu¹, Andrea Zani⁵

¹ INFN Sezione di Pavia, Pavia, Italy, ² AGH University of Science and Technology, Cracow, Poland, ³ INFN Sezione di Milano Bicocca, Milano, Italy, ⁴ University of Texas at Arlington, Texas, USA, ⁵ CERN, Geneva, Switzerland, ⁶ INFN Sezione di Padova, Padova, Italy

416 - (11:25) Characterization and Comparison of Recent Blue Sensitive SiPMs

Nepomuk Otte

Georgia Institute of Technology, USA

558 - (11:45) Development of Three Silicon Photomultiplier Detector Modules for the MAGIC Telescopes for a Performance Comparison to PMTs

Alexander Hahn¹, David James Fink¹, Razmik Mirzoyan¹, Masahiro Teshima², Antonios Dettlaff¹

¹ Max Planck Institute for Physics, Germany, ² Institute for Cosmic Ray Research, Tokyo, Japan

613 - (12:05) Neutron Irradiation Effect on SiPMs up to 5×10^{14} neq/cm²

David Lomidze, Erika Garutti, Robert Klanner, Schwandt Joern

University of Hamburg, Germany

Session 19 - Applications to Physics II

Friday, 13:55-15:35

Session Chair: Erika Garutti, University of Hamburg, Germany

390 - (13:55) A Compact Imaging System with a CdTe Double-Sided Strip Detector for Non-Destructive Analysis Using Negative Muonic X-rays

Miho Katsuragawa¹, Shin'ichiro Takeda², Atsushi Harayama¹, Motonobu Tampo³, Koji Hamada³, Shin Watanabe¹, Tadayuki Takahashi¹, Yasuhiro Miyake³

¹ ISAS/JAXA, Japan, ² Okinawa Institute of Science and Technology Graduate University (OIST), Japan, ³ High Energy Accelerator Research Organization (KEK), Japan

424 - (14:05) Micromegas X-Ray Detectors for Solar Axion Searches: Performance in Cast And Developments for IAXO

Esther Ferrer Ribas

CEA/IRFU, Saclay, France

561 - (14:35) Development of a Miniature Radiation Pressure-Measuring Microscale

Ivan Ryger, Alexandra Artusio-Glimpse, Paul Williams, Nathan Tomlin, Michelle Stephens, Matthew Spidell, John Lehman

National Institute of Standards and Technology, USA

614 - (14:55) Photon Imaging with the Modular and Multipurpose Readout Electronics of the Large-Area CLAS12 RICH

Marco Contalbrigo

INFN Ferrara, Italy

635 - (15:15) Prospects for a Precision Timing Upgrade of the CMS PbWO Crystal Electromagnetic Calorimeter for the HL-LHC

Badder Marzocchi, for the CMS Collaboration

Univerità Roma I and INFN-Roma, Italy

Closing Session

Friday, 15:35-16:30

Session Chair: Aline Meuris, CEA/IRFU, France

Closing Talk - (15:35) Muon Tomography, From High Energy Physics To Societal Applications

David Attié

CEA/IRFU, France

(16:05) NDIP 2017 Award Ceremony and Closing Remarks

Fabio Sauli¹ and Olivier Limousin²

¹ CERN, Switzerland

² CEA/IRFU, France

