

11th "Trento" Workshop on Advanced Silicon Radiation Detectors

Report of Contributions

Contribution ID: 143

Type: **not specified**

Welcome

Monday, February 22, 2016 2:00 PM (5 minutes)

Presenter: CALDERINI, Giovanni (Centre National de la Recherche Scientifique (FR))

Session Classification: Introduction

Contribution ID: 144

Type: **not specified**

Progress in Ultra-Fast Silicon Detectors

Monday, February 22, 2016 2:20 PM (20 minutes)

Presenters: SADROZINSKI, Hartmut (SCIPP, UC Santa Cruz); SADROZINSKI, Hartmut (University of California, Santa Cruz (US))

Session Classification: Introduction

Contribution ID: 145

Type: **not specified**

Tracking in 4 dimensions

Monday, February 22, 2016 2:40 PM (20 minutes)

Presenter: CARTIGLIA, Nicolo (Universita e INFN Torino (IT))

Session Classification: Introduction

Contribution ID: 146

Type: **not specified**

Electric field, mobility and trapping in Si detectors irradiated with neutrons and protons up to 10^{17} n_{eq}/cm²

Monday, February 22, 2016 3:00 PM (20 minutes)

Presenter: MIKUZ, Marko (Jozef Stefan Institute (SI))

Session Classification: Introduction

Contribution ID: 147

Type: **not specified**

Recent results with hybrid pixel assemblies for the CLIC vertex detector

Monday, February 22, 2016 4:15 PM (20 minutes)

Presenters: NURNBERG, Andreas Matthias (CERN); NURNBERG, Andreas Matthias (Inst. fuer Experimentelle Kernphys.-Universitaet Karlsruhe-Karl)

Session Classification: Planar 1

Contribution ID: 148

Type: **not specified**

Silicon pixel tracking detector with ultra-precise time resolution

Monday, February 22, 2016 4:35 PM (20 minutes)

Presenter: FIORINI, Massimiliano (Universita di Ferrara & INFN (IT))

Session Classification: Planar 1

Contribution ID: 149

Type: **not specified**

X-rays characterisation of pixelated silicon detectors

Monday, February 22, 2016 4:55 PM (20 minutes)

Presenter: Dr MANEUSKI, Dima (University of Glasgow (GB))

Session Classification: Planar 1

Contribution ID: 150

Type: **not specified**

The Belle II SVD Origami Modules

Monday, February 22, 2016 5:15 PM (20 minutes)

Presenter: PALADINO, Antonio (INFN - National Institute for Nuclear Physics)

Session Classification: Planar 1

Contribution ID: 151

Type: **not specified**

Charge Collection Properties of depleted Monolithic Active Pixel Sensors

Tuesday, February 23, 2016 9:00 AM (20 minutes)

Presenter: BACKHAUS, Malte (CERN)

Session Classification: HVCMOS 1

Contribution ID: 152

Type: **not specified**

Development of passive pixel sensors using a commercial 150nm CMOS technology on high resistivity silicon

Tuesday, February 23, 2016 9:20 AM (20 minutes)

Presenters: HUEGGING, Fabian (Universitaet Bonn (DE)); HUEGGING, Fabian (University of Bonn)

Session Classification: HVCMOS 1

Contribution ID: 153

Type: **not specified**

Monolithic CMOS ASIC Developments

Tuesday, February 23, 2016 9:40 AM (20 minutes)

Presenter: CARAGIULO, Pietro (SLAC)

Session Classification: HVC MOS 1

Contribution ID: 154

Type: **not specified**

The impact and persistence of static surface charges on differently passivated silicon strip sensors

Tuesday, February 23, 2016 11:00 AM (20 minutes)

Presenter: Dr KOENIG, Axel

Session Classification: Technology

Contribution ID: 155

Type: **not specified**

New pixel technologies for HL-LHC

Tuesday, February 23, 2016 11:20 AM (20 minutes)

Presenter: GAUDIELLO, Andrea (Universita e INFN Genova (IT))

Session Classification: Technology

Contribution ID: 156

Type: **not specified**

Detector development at the Paul-Scherrer-Institut (PSI)

Tuesday, February 23, 2016 11:40 AM (20 minutes)

Presenter: GREIFFENBERG, Dominic (PSI - Paul Scherrer Institute)

Session Classification: Technology

Contribution ID: 157

Type: **not specified**

Reverse bias current characterisation of silicon strip sensors and shallow radiation damage generation

Tuesday, February 23, 2016 12:00 PM (20 minutes)

Presenter: WONSAK, Sven (University of Liverpool (GB))

Session Classification: Technology

Contribution ID: 158

Type: **not specified**

TCT measurements of HV-CMOS test structures irradiated with neutrons

Tuesday, February 23, 2016 2:00 PM (20 minutes)

Presenter: MANDIC, Igor (Jozef Stefan Institute (SI))

Session Classification: HVC MOS 2

Contribution ID: 159

Type: **not specified**

Investigation on the radiation resistance of HV-CMOS and pin diodes using a Transient Current Technique based on the Two-Photon-Absorption Process

Tuesday, February 23, 2016 2:20 PM (20 minutes)

Transient Current Techniques (TCT) based on laser-induced photo-currents produced by Single Photon Absorption (SPA) processes have been extensively used during the last two decades as a powerful tool to study many of the properties relevant to operation of semiconductor detectors.

Very recently, an innovative Transient Current Technique was introduced where the free charge carriers are created in a Two-Photon-Absorption (TPA) process induced by a focused femto-second laser pulse with a wavelength of 1300nm. The fact that in a TPA process the absorption of the light depends on the square of the intensity of the light beam used for the current generation allows a localized TPA-induced electron-hole pair creation in a micrometric scale voxel centered on the laser waist. As a consequence, this new technique opens the possibility to carry out a 3D mapping of the sensor's space-charge properties with micrometric resolution.

Due to its intrinsic spatial resolution, the TPA-TCT technique should be a very appropriate choice for the characterization of the alterations of the sensor's active (charge collecting) volume induced by radiation damage and especially for the case of partially depleted sensors as it is the case of the carrier collecting n-well implemented in HV-CMOS sensors.

Primary author: VILA ALVAREZ, Ivan (Universidad de Cantabria (ES))

Co-authors: MOYA MARTIN, David (Universidad de Cantabria (ES)); PALOMO PINTO, Francisco Rogelio (Universidad de Cantabria (ES)); KRAMBERGER, Gregor (Jozef Stefan Institute (SI)); GONZALEZ SANCHEZ, Javier (Universidad de Cantabria (ES)); FERNANDEZ GARCIA, Marcos (Universidad de Cantabria (ES)); MOLL, Michael (CERN); JARAMILLO, Richard (IFCA); HIDALGO VILLENA, Salvador (Instituto de Microelectronica de Barcelona (ES))

Presenter: VILA ALVAREZ, Ivan (Universidad de Cantabria (ES))

Session Classification: HVCMOS 2

Contribution ID: 160

Type: **not specified**

SPS Test Beam characterisation results with CCPDv4 capacitively coupled to FEI4

Tuesday, February 23, 2016 2:40 PM (20 minutes)

Presenter: DI BELLO, Francesco Armando (Universite de Geneve (CH))

Session Classification: HVC MOS 2

Contribution ID: **161**

Type: **not specified**

Pixel Sensor Development for the LHCb VELO Upgrade

Tuesday, February 23, 2016 4:15 PM (20 minutes)

Presenters: FOLKESTAD, Asmund Schiager (Norwegian University of Science and Technology (NO)); FOLKESTAD, Åsmund

Session Classification: Planar 2

Contribution ID: **162**

Type: **not specified**

The Phase 1 upgrade of the CMS pixel detector

Tuesday, February 23, 2016 4:35 PM (20 minutes)

Presenter: VESZPREMI, Viktor (Wigner RCP, Budapest (HU))

Session Classification: Planar 2

Contribution ID: 163

Type: **not specified**

Results on thin n in p Planar Pixels from INFN R&D

Tuesday, February 23, 2016 4:55 PM (20 minutes)

Presenter: MESCHINI, Marco (Universita e INFN, Firenze (IT))

Session Classification: Planar 2

Contribution ID: 164

Type: **not specified**

Characterisation of thin irradiated epitaxial silicon sensors for the CMS phase II pixel upgrade

Tuesday, February 23, 2016 5:15 PM (20 minutes)

Presenter: CENTIS VIGNALI, Matteo (Hamburg University (DE))

Session Classification: Planar 2

Contribution ID: 165

Type: **not specified**

Latest development in HPK/KEK n^+ -in-p planar pixel sensors for very high radiation environments

Wednesday, February 24, 2016 9:00 AM (20 minutes)

Presenter: UNNO, Yoshinobu (High Energy Accelerator Research Organization (JP))

Session Classification: Planar 3

Contribution ID: 166

Type: **not specified**

Study of New ADVACAM Active Edge Sensor Technology for ATLAS Upgrade

Wednesday, February 24, 2016 9:20 AM (20 minutes)

Presenter: RASHID, Tasneem (Laboratoire de l'Accelérateur Lineaire (FR))

Session Classification: Planar 3

Contribution ID: 167

Type: **not specified**

Performance of Edgeless Silicon Pixel Sensors on p-type substrate for the ATLAS High-Luminosity Upgrade

Wednesday, February 24, 2016 9:40 AM (20 minutes)

Presenter: DUCOURTHIAL, Audrey (Centre National de la Recherche Scientifique (FR))

Session Classification: Planar 3

Contribution ID: 168

Type: **not specified**

Initial results from the electrical characterisation of planar p-on-n sensors with active/slim-edge for the next generation of FELs

Wednesday, February 24, 2016 10:00 AM (20 minutes)

Presenters: DALLA BETTA, Gian Franco (Universita degli Studi di Trento (IT)); DALLA BETTA, Gian-Franco (INFN and University of Trento)

Session Classification: Planar 3

Contribution ID: 169

Type: **not specified**

Low Gain Avalanche Detectors TCAD Radiation Damage Analysis

Wednesday, February 24, 2016 11:20 AM (20 minutes)

Where we present our last results on radiation damage analysis of Low Gain Avalanche Detectors using the Synopsys TCAD suite and different well established radiation damage models. Our main conclusions point to this device could work reasonably well up to $\sim 10^{14}$ n_eq/cm².

Co-authors: VILA ALVAREZ, Ivan (Universidad de Cantabria (ES)); HIDALGO VILLENA, Salvador (Instituto de Microelectronica de Barcelona (ES))

Presenters: PALOMO PINTO, Francisco Rogelio (Universidad de Cantabria (ES)); PALOMO PINTO, Francisco Rogelio (Universidad de Sevilla (ES))

Session Classification: LGAD

Contribution ID: 170

Type: **not specified**

First Inverted Low Gain Avalanche Detector fabrication at IMB-CNM

Wednesday, February 24, 2016 11:40 AM (20 minutes)

Presenter: CARULLA ARESTE, Maria del Mar (Instituto de Microelectronica de Barcelona IMB-CNM)

Session Classification: LGAD

Contribution ID: 171

Type: **not specified**

Low Gain Avalanche Diode gallium process flow simulation studies

Wednesday, February 24, 2016 12:00 PM (20 minutes)

Presenter: GKOUKOUSIS, Vagelis (Laboratoire de l'Accelérateur Lineaire (FR))

Session Classification: LGAD

Contribution ID: 172

Type: **not specified**

Status of LGAD CNM fabrications

Wednesday, February 24, 2016 11:00 AM (20 minutes)

Presenters: PELLEGRINI, Giulio (Universidad de Valencia (ES)); PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES))

Session Classification: LGAD

Contribution ID: 173

Type: **not specified**

Status of 3D detector activities at CNM

Wednesday, February 24, 2016 2:00 PM (20 minutes)

Presenters: PELLEGRINI, Giulio (Universidad de Valencia (ES)); PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES))

Session Classification: 3D

Contribution ID: 174

Type: **not specified**

Initial results from a new generation of 3D Sensors for HL-LHC

Wednesday, February 24, 2016 2:40 PM (20 minutes)

Presenters: BOSCARDIN, Maurizio (FBK Trento); BOSCARDIN, Maurizio (Unknown)

Session Classification: 3D

Contribution ID: 175

Type: **not specified**

Beam test results of irradiated 3D pixel sensors for the CMS-TOTEM Precision Proton Spectrometer

Wednesday, February 24, 2016 2:20 PM (20 minutes)

Presenter: RAVERA, Fabio (Universita e INFN Torino (IT))

Session Classification: 3D

Contribution ID: 177

Type: **not specified**

TCAD simulations of High-Voltage-CMOS pixel structures for the CLIC vertex detector

Wednesday, February 24, 2016 4:15 PM (20 minutes)

Presenter: BUCKLAND, Matthew Daniel (University of Liverpool (GB))

Session Classification: TCAD

Contribution ID: 178

Type: **not specified**

Validation strategy for the simulation of highly irradiated silicon pixel sensors

Wednesday, February 24, 2016 4:35 PM (20 minutes)

Presenter: SCHWANDT, Joern (Hamburg University (DE))

Session Classification: TCAD

Contribution ID: 179

Type: **not specified**

TCAD simulations of LGAD devices using Silvaco software

Wednesday, February 24, 2016 4:55 PM (20 minutes)

Presenter: BOMBEN, Marco (Centre National de la Recherche Scientifique (FR))

Session Classification: TCAD

Contribution ID: **180**

Type: **not specified**

Comprehensive radiation damage test and modelling of p-type silicon detectors for high-luminosity operations

Wednesday, February 24, 2016 5:15 PM (20 minutes)

Presenter: MOROZZI, Arianna (Universita e INFN, Perugia (IT))

Session Classification: TCAD

Contribution ID: **181**

Type: **not specified**

Close-out

Wednesday, February 24, 2016 5:45 PM (15 minutes)

Session Classification: Conference closing

Contribution ID: **182**

Type: **not specified**

3D Sensors for the HL-LHC

Monday, February 22, 2016 3:20 PM (20 minutes)

Presenter: GRINSTEIN, Sebastian (IFAE - Barcelona (ES))

Session Classification: Introduction

Contribution ID: **184**

Type: **not specified**

The upgraded ATLAS Pixel detector and its performance during run-2 in 2015

Tuesday, February 23, 2016 5:35 PM (20 minutes)

Presenter: FERRERE, Didier (Universite de Geneve (CH))

Session Classification: Planar 2

Contribution ID: 186

Type: **not specified**

Beam test results of highly irradiated planar and 3D pixel sensors for the Phase II Upgrade of the CMS pixel detector

Monday, February 22, 2016 5:35 PM (20 minutes)

Presenter: SCHELL, Daniel (KIT - Karlsruhe Institute of Technology (DE))

Session Classification: Planar 1

Contribution ID: **187**

Type: **not specified**

The first reticle size HV-CMOS sensor demonstrator for ATLAS pixel layers

Tuesday, February 23, 2016 10:00 AM (20 minutes)

Presenter: PERIC, Ivan (KIT - Karlsruhe Institute of Technology (DE))

Session Classification: HVC MOS 1

Contribution ID: **188**

Type: **not specified**

Characterization of 3D module with micro-channel cooling

Wednesday, February 24, 2016 3:00 PM (20 minutes)

Presenter: DA VIA, Cinzia (University of Manchester (GB))

Session Classification: 3D

Contribution ID: **189**

Type: **not specified**

Practical information

Monday, February 22, 2016 2:05 PM (15 minutes)

Presenters: MARCHIORI, Giovanni (LPNHE Paris); BOMBEN, Marco (Centre National de la Recherche Scientifique (FR))

Session Classification: Introduction