

3rd International Summer School on INtelligent Signal Processing for FrontIER Research and Industry



Report of Contributions

Contribution ID: 0

Type: **not specified**

Lunch

Tuesday 15 September 2015 13:00 (1 hour)

Contribution ID: **1**

Type: **not specified**

Coffee

Tuesday 15 September 2015 16:00 (30 minutes)

Contribution ID: 2

Type: **not specified**

Welcome Cocktail (and Sign-Up for the Labs)

Tuesday 15 September 2015 18:00 (1h 30m)

Contribution ID: 3

Type: **not specified**

Welcome

Tuesday 15 September 2015 09:00 (30 minutes)

Presenters: LOUIS, Jan (Universität Hamburg); Dr WALSH, Roberval (DESY)

Contribution ID: 4

Type: **not specified**

Increasing intelligence on Astrophysics Instruments: the Gravitational Waves experiments as an example case (Part I)

Tuesday 15 September 2015 09:30 (1h 30m)

Presenter: Prof. SCHUTZ, Bernard

Session Classification: Introduction to Signal Processing in Astrophysics, Medical Physics and Particle Physics

Contribution ID: 5

Type: **not specified**

Increasing intelligence on Astrophysics Instruments: the Gravitational Waves experiments as an example case (Part II)

Tuesday 15 September 2015 11:30 (1h 30m)

Presenter: Prof. SCHUTZ, Bernard (Albert Einstein Institute Hannover, MPI, Ge)

Session Classification: Introduction to Signal Processing in Astrophysics, Medical Physics and Particle Physics

Contribution ID: 6

Type: **not specified**

IMAGING TECHNOLOGY FOR TRANSLATIONAL MEDICINE

Tuesday 15 September 2015 14:00 (1h 30m)

Primary author: Prof. XIE, Qingguo (Huazhong University of Science and Technology, CN)

Presenter: Prof. XIE, Qingguo (Huazhong University of Science and Technology, CN)

Session Classification: Introduction to Signal Processing in Astrophysics, Medical Physics and Particle Physics

Contribution ID: 7

Type: **not specified**

Lecture Tittle to be announced

Presenter: TBA

Contribution ID: 8

Type: **not specified**

VERTICAL INTEGRATION in NEW DEVICES

Wednesday 16 September 2015 13:30 (1h 30m)

This is the first lecture dedicated to the VDSM and 3D vertical interconnects, the second one dedicated specifically to the VDSM technology will be given on September 23, by G. Deptuch (FNAL)

Presenter: Prof. JONES, Matthew (University of Purdue, USA)

Session Classification: Introduction session on Advanced Very Deep Sub Micron CMOS technologies, 3D technologies and Industry trends

Contribution ID: 9

Type: **not specified**

New Calorimetry techniques and Intelligent Signal Processing: FRONT-END ELECTRONICS in IMAGING CALORIMETRY

Thursday 17 September 2015 09:00 (2 hours)

Presenter: DE LA TAILLE, Christophe (OMEGA, Ecole Polytechnique/CNRS, Palaiseau, FR)

Session Classification: Intelligent Front-End Processing on Instruments

Contribution ID: 10

Type: **not specified**

Signal Processing on Detectors filled with Noble Gas: The Direct search for Dark Matter and Long Baseline Neutrino experiments

Thursday 17 September 2015 11:30 (1h 30m)

The focus is on the experiments using Noble gases.

Presenter: Prof. SCHUMANN, Marc (Albert Einstein Center for Fundamental Physics, University of Bern, CH)

Session Classification: Intelligent Front-End Processing on Instruments

Contribution ID: 11

Type: **not specified**

On-detector High Signal Processing for next generation HEP trackers : TRACK TRIGGERING, NO

Friday 18 September 2015 08:45 (1 hour)

Co-author: TBA

Presenter: COLLINS, Paula (CERN)

Session Classification: Intelligent Front-End Processing on Instruments (cont'd)

Contribution ID: 12

Type: **not specified**

PROCESSING the SIGNALS from PIXEL DETECTORS in X-RAY IMAGING at FELs

Friday 18 September 2015 09:45 (1h 30m)

Presenter: RATTI, Lodovico (University of Pavia/INFN, IT)

Session Classification: Intelligent Front-End Processing on Instruments (cont'd)

Contribution ID: 13

Type: **not specified**

Signal Processing for Gravitational Waves Experiments

Friday 18 September 2015 11:35 (1h 25m)

Presenter: HALLOIN, Hubert (APC-University Paris Diderot (FR))

Session Classification: Intelligent Front-End Processing on Instruments (cont'd)

Contribution ID: 14

Type: **not specified**

**NEW FRONT-END ASIC DESIGN(s) for next
generation of pixel based devices : How to handle
with High granularity, high rate & high
performances in the HEP case (HL-LHC)**

Saturday 19 September 2015 10:50 (1h 15m)

Presenter: Prof. GARCIA-SCIVERES, Maurice (LBL, USA)

Session Classification: Intelligent Silicon Trackers: Pixels and large area Si Trackers

Contribution ID: 15

Type: **not specified**

TECHNOLOGICAL CHALLENGES for REALTIME PROCESSING of PIXEL INFORMATION

Saturday 19 September 2015 12:15 (1 hour)

Presenter: Prof. GARCIA-SCIVERES, Maurice (LBL, USA)

Session Classification: Intelligent Silicon Trackers: Pixels and large area Si Trackers

Contribution ID: 16

Type: **not specified**

Large tracking detectors for the HL-LHC with novel trigger systems - ATLAS case

Saturday 19 September 2015 09:00 (1h 30m)

Presenter: Dr GREGOR, Ingrid (DESY)

Session Classification: Intelligent Silicon Trackers: Pixels and large area Si Trackers

Contribution ID: 17

Type: **not specified**

RECENT ADVANCES in SILICON PHOTONICS - part 1

Monday 21 September 2015 09:00 (2 hours)

Primary author: VIVIEN, Laurent (Institut d'Electronique Fondamentale - CNRS, Si photonics, University of Paris Sud, FR)

Presenter: VIVIEN, Laurent (Institut d'Electronique Fondamentale - CNRS, Si photonics, University of Paris Sud, FR)

Session Classification: Data transmission challenges, new trends in Telecom ; the interconnected worlds

Contribution ID: **18**

Type: **not specified**

RECENT ADVANCES in SILICON PHOTONICS - part 2

Monday 21 September 2015 11:30 (1h 30m)

Presenter: VIVIEN, Laurent (Institut d'Electronique Fondamentale - CNRS, Si photonics, University of Paris Sud, FR)

Session Classification: Data transmission challenges, new trends in Telecom ; the interconnected worlds

Contribution ID: 19

Type: **not specified**

DATAFLOW: current and future data-transmission applications in the data-acquisition systems at the LHC

Tuesday 22 September 2015 09:00 (1h 30m)

Presenter: VANDELLI, Wainer

Session Classification: Data transmission challenges and needs for Frontier applications in Astrophysics and Particle Physics

Contribution ID: 20

Type: **not specified**

DATA TRANSMISSION CHALLENGES & NEEDS for FRONTIER TELECOM APPLICATIONS in MEDICAL IMAGING

Contribution ID: 21

Type: **not specified**

Data transmission challenges and needs for Frontier applications in Astro-particles: the AMS spatial case

Tuesday 22 September 2015 11:00 (1h 30m)

Presenters: Dr D'URSO, Domenico; Prof. AMBROSI, Giovanni (University of Perugia, Italy)

Session Classification: Data transmission challenges and needs for Frontier applications in Astrophysics and Particle Physics

Contribution ID: 22

Type: **not specified**

HIGH PERFORMANCE and MASSIVE PARALLEL COMPUTING needs and challenges for Astrophysics: the gravitational waves experiments case

Wednesday 23 September 2015 09:00 (1h 30m)

Presenter: Dr KRISHNAN, Badri (Albert Einsitein Institute Hannover, MPI, Ge)

Session Classification: Massive Parallel and High Performance Computing (MPC-HPC)

Contribution ID: 23

Type: **not specified**

VDSM...HOW DEEP ? : benefits and limitations

Presenter: PHILIPS-HAMBURG REPRESENTATIVE (TBA)

Contribution ID: 24

Type: **not specified**

Massive Parallel and High Performance Computing needs in HEP: new challenges and trends

Presenter: Prof. MARCONI, Umberto (INFN Bologna, Italy)

Contribution ID: 25

Type: **not specified**

The LISA PATHFINDER

Presenter: Prof. VITALE, Stefano (University of Trento, It.)

Contribution ID: 26

Type: **not specified**

Test systems in HEP: Lab-based test benches and test beams

Friday 25 September 2015 09:00 (1h 30m)

Presenter: Dr JANSEN, Hendrik (DESY)

Session Classification: New Test Bench and Demonstrators developed for Future Experiments/Projects (cont'd)

Contribution ID: 27

Type: **not specified**

EXAMPLES of SPECIFIC TEST SYSTEMS For ASTROPHYSICS

Contribution ID: 28

Type: **not specified**

Medical Imaging Applications and Demonstrators: Challenges in PET Imaging

Friday 25 September 2015 11:00 (1h 30m)

Co-author: VAQUERO, Juan Jose (University Carlos III, Madrid)

Presenter: VAQUERO, Juan Jose (University Carlos III, Madrid)

Session Classification: New Test Bench and Demonstrators developed for Future Experiments/Projects (cont'd)

Contribution ID: 29

Type: **not specified**

Safety Course

Tuesday 15 September 2015 15:30 (30 minutes)

Session Classification: Safety Course and Presentation of Labs

Contribution ID: **30**

Type: **not specified**

Labs

Tuesday 15 September 2015 16:30 (1h 30m)

Session Classification: Safety Course and Presentation of Labs

Contribution ID: **31**

Type: **not specified**

Labs

Contribution ID: **32**

Type: **not specified**

Labs

Thursday 17 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **33**

Type: **not specified**

Labs

Friday 18 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **34**

Type: **not specified**

Labs

Saturday 19 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: 35

Type: **not specified**

Labs

Monday 21 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **36**

Type: **not specified**

Labs

Tuesday 22 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: 37

Type: **not specified**

Labs

Wednesday 23 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **38**

Type: **not specified**

Labs

Thursday 24 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **39**

Type: **not specified**

Labs

Friday 25 September 2015 14:30 (2h 45m)

Session Classification: Lab Sessions

Contribution ID: **40**

Type: **not specified**

Labs

Contribution ID: 41

Type: **not specified**

DISCUSSION SESSION

Wednesday 16 September 2015 17:45 (1 hour)

Focus will be on the lectures given on September 15 and 16.

Session Classification: Discussion/Public Lecture

Contribution ID: 42

Type: **not specified**

COLLOQUIUM on LOOKING FOR THE DARK MATTER HIDING IN THE UNIVERSE

Thursday 17 September 2015 17:45 (1 hour)

Presenter: Dr CIRELLI, Marco (IPhT-CEA, Saclay, FR)

Session Classification: Discussion/Public Lecture

Contribution ID: 43

Type: **not specified**

DISCUSSION SESSION

Friday 18 September 2015 17:45 (1 hour)

Focus on the Lectures given on September 17 and 18.

Session Classification: Discussion/Public Lecture

Contribution ID: 44

Type: **not specified**

Discussion session

Saturday 19 September 2015 17:45 (1 hour)

Focus on the saturday morning lectures; as for the other discussion sessions of the school the attendance is free.

Session Classification: Discussion/Public Lecture

Contribution ID: 45

Type: **not specified**

COLLOQUIUM on THE EUROPEAN X-RAY LASER PROJECT XFEL: scientific and industrial impacts and perspectives

Monday 21 September 2015 17:45 (1 hour)

Presenters: Dr SINN, Harald (DESY); Dr SINN, Harald (European XFEL)

Session Classification: Discussion/Public Lecture

Contribution ID: 46

Type: **not specified**

INSTRUMENTATION THE GREAT ENABLER

Tuesday 22 September 2015 17:45 (1 hour)

(Lecture moved from the first day)

Presenter: Prof. SHIPSEY, Ian

Session Classification: Discussion/Public Lecture

Contribution ID: 47

Type: **not specified**

COLLOQUIUM on FUTURE COLLIDERS

Thursday 24 September 2015 17:45 (1 hour)

Presenter: Prof. FOSTER, Brian (DESY)

Session Classification: Discussion/Public Lecture

Contribution ID: **48**

Type: **not specified**

Registration

Monday 14 September 2015 16:00 (2 hours)

Session Classification: Registration

Contribution ID: 49

Type: **not specified**

The LISA PATHFINDER

Presenter: Prof. VITALE, Stefano (University of Trento, Italy)

Contribution ID: 50

Type: **not specified**

New challenges and Needs on Massive Parallel and High Performance Computing (cont'd): the New Particle Physics Experiments case

Thursday 24 September 2015 10:00 (1h 30m)

Presenter: Dr MARCONI, Umberto (Universita and INFN-Bologna, Italy)

Session Classification: Massive Parallel and High Performance Computing

Contribution ID: 51

Type: **not specified**

PARTICLE DETECTORS as MONITORS for CANCER THERAPY

Thursday 24 September 2015 12:00 (1h 30m)

Presenter: Prof. FACCINI, Riccardo (University Roma 1, La Sapienza, IT)

Session Classification: New Test Bench and Demonstrators developed for Future Experiments/Projects

Contribution ID: 55

Type: **not specified**

PARTICLE DETECTORS as MONITORS for CANCER THERAPY

Presenter: Prof. FACCINI, Ricardo (University Roma 1, La Sapienza, IT)

Contribution ID: 57

Type: **not specified**

VDSM...HOW DEEP ? : benefits and limitations

Wednesday 23 September 2015 11:00 (2 hours)

Note that due to Lecturer's time constraint this lecture has been moved of date and time.

Presenter: Dr DEPTUCH, Grzegorz (Fermi National Lab. USA)

Session Classification: Introduction session on Advanced Very Deep Sub Micron CMOS technologies, 3D technologies and Industry trends

Contribution ID: 61

Type: **not specified**

Introductory Tutorial To New Automata Processors, Part1

Wednesday 16 September 2015 15:30 (1 hour)

This Tutorial serves as introduction to the Lab sessions initiating to this new type of processors.

Presenters: Dr WANG, Ke (Computer Science, Automata Processing Center, University of Virginia, USA); TANNER, Matt (MICRON)

Session Classification: Massive Parallel and High Performance Computing (MPC-HPC)

Contribution ID: 62

Type: **not specified**

Introductory Tutorial To New Automata Processors, Part 2

Wednesday 16 September 2015 16:40 (1h 5m)

This Tutorial serves as introduction to the Lab sessions initiating to this new type of processors.

Presenters: Dr WANG, Ke (Computer Science, Automata Processing Center, University of Virginia, USA); TANNER, Matt (MICRON)

Session Classification: Massive Parallel and High Performance Computing (MPC-HPC)

Contribution ID: 66

Type: **not specified**

PET & PET IMAGE RECONSTRUCTION

Thursday 24 September 2015 09:00 (1 hour)

Presenter: Dr PREVRHAL, Sven (PHILIPS Research Hamburg, GE)

Session Classification: Massive Parallel and High Performance Computing

Contribution ID: 67

Type: **not specified**

Development of a Data Compressor for the CMS Phase II Pixel Detector

Friday 25 September 2015 12:30 (5 minutes)

Presenter: POULIOS, Stamatios (University of Siena and INFN-Pisa, IT)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 68

Type: **not specified**

Development of Coincidence Sorter and Communication Protocol between the Boards on PET System

Friday 25 September 2015 12:35 (5 minutes)

Presenter: KOSTARA, Elefetheria (University of Siena and INFN-Pisa, IT)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 69

Type: **not specified**

The Use of Gold Nanoparticles and Spectroscopic Detectors in Contrast-enhanced Digital Mammography

Friday 25 September 2015 12:40 (5 minutes)

Presenter: DUMMOTT, Louise (University of Surrey, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 70

Type: **not specified**

Circuit Data Flow (CIDAF): A generic, flexible, discrete-time simulator

Friday 25 September 2015 12:45 (5 minutes)

Presenter: CALLIGARIS, Luigi (RAL-STFC, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 71

Type: **not specified**

Microwave Kinetic Inductance Detectors for Astronomy

Friday 25 September 2015 12:50 (5 minutes)

Presenter: DODKINS, Rupert (Oxford, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 72

Type: **not specified**

Multi-Grid High Gas Proportional Scintillation Counter: A New Approach

Friday 25 September 2015 12:55 (5 minutes)

Presenter: VENTURA CORTEZ, Andre Filipe (LIP-Coimbra)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 73

Type: **not specified**

Development of an Intelligent Platform Management Controller for the Pulsar IIB

Friday 25 September 2015 13:00 (5 minutes)

Presenter: COSTA DE PAIVA, Thiago (SPRACE-UNESP, BR)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 74

Type: **not specified**

Data Sourcing Firmware for CMS L1 Tracking Trigger

Friday 25 September 2015 13:05 (5 minutes)

Presenter: COSTA DE PAIVA, Thiago (SPRACE-UNESP)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 75

Type: **not specified**

Simulations, Testing and Results for the Pixelization of LYSO Crystals for Gamma Detectors Using the Sub-Surface Laser Engraving Techniques

Friday 25 September 2015 13:10 (5 minutes)

Presenter: KONSTANTINOU, Georgios (Universita Carlos Tercero, Madrid, SP)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 76

Type: **not specified**

Integration of the Camera Backplane of the Gamma Cherenkov Telescope for the Cherenkov Telescope Array

Friday 25 September 2015 13:15 (5 minutes)

Presenter: DE FRANCO, Andrea (Oxford, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 77

Type: **not specified**

Search for Narrow High Mass Resonances Decaying to Z and Higgs Bosons

Friday 25 September 2015 13:20 (5 minutes)

Presenter: BERNARDES, Cesar (SPRACE and UAB University, Sao Paulo, BR)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 78

Type: **not specified**

Simulation of a Silicon Sensor Edge-on Illuminated with an X-Ray Beam

Friday 25 September 2015 13:25 (5 minutes)

Presenter: DONI, Michele (NIKHEF and PHILIPS, NL)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 79

Type: **not specified**

SiPM-MAROC gamma-camera prototype with Monolithic NaI(Tl) scintillator

Friday 25 September 2015 13:30 (5 minutes)

Presenter: PHILIPPOV, Dmitry (National Research Nuclear University, MEPhi, Moscow, RU)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 80

Type: **not specified**

2.5Gb/s Optical Wireless Communication System for Particle Detectors in High Energy Physics

Friday 25 September 2015 13:35 (5 minutes)

Presenter: ALI, Wahajat (Scuola Superiore Sant'Anna, Pisa, IT)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: **81**

Type: **not specified**

Light Weight Radiation Sensors

Friday 25 September 2015 13:40 (5 minutes)

Presenter: GIROLETTI, Chiara (University of Bristol, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: **82**

Type: **not specified**

Muon Tomography

Friday 25 September 2015 13:45 (5 minutes)

Presenter: GIROLETTI, Alessia (University of Bristol, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 83

Type: **not specified**

Edge Studies on Sensors for the LHCb VELO Upgrade

Friday 25 September 2015 13:50 (5 minutes)

Presenter: DELL'OCCO, Elena (NIKHEF-FOM, NL)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: **84**

Type: **not specified**

LHCb VELO Upgrade

Friday 25 September 2015 13:55 (5 minutes)

Presenter: BUCHANAN, Emma (University of Bristol, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 85

Type: **not specified**

A Pattern Recognition Mezzanine Based on Associative Memory FPGA Technology for L1 Track Triggering at HL-LHC

Friday 25 September 2015 14:00 (5 minutes)

Presenter: FEDI, Giacomo (INFN-Pisa, Pisa, IT)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 86

Type: **not specified**

NEXT: The Front-End Electronics for the 1.8-kchannel SiPM Tracking Plane in the NEW Detector

Friday 25 September 2015 14:05 (5 minutes)

Presenter: RODRIGUEZ SAMANIEGO, Javier (IFIC-CSIC/UV, Valencia, SP)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: 87

Type: **not specified**

Demonstrator Plans for FPGA-Based L1 Track-Finding with Hough Transform

Friday 25 September 2015 14:10 (5 minutes)

Presenter: CIERI, Davide (RAL-STFC, UK)

Session Classification: SPECIAL POSTER SESSION

Contribution ID: **88**

Type: **not specified**

Development of Novel Pixel Sensors based on 3D CMOS Technology for Tracking Devices

Friday 25 September 2015 14:15 (5 minutes)

Presenter: VIGNETTI, Matteo (INSA-Lyon and Institut of Nanotechnology/CNRS, Lyon, FR)

Session Classification: SPECIAL POSTER SESSION