

# Topical Workshop on FE electronics for gas detector

Tue 15<sup>th</sup> June – Thu 17<sup>th</sup> June 2021, 2pm-6:30pm CEST,

RD51 Collaboration Meeting

<https://indico.cern.ch/event/1040996/>

RD51 Collaboration



# Structure of the workshop

## Sessions

- **Lectures (4)**  
Front End Electronics for Particle Detectors and Front-End ASIC design
- **Applications (7)**  
Detector experts contributions on electronics for specific application fields
- **Developments and ASICs (24)**  
Developers and ASIC designers contributions on developments and ASICs

List of contributions:

<https://cernbox.cern.ch/index.php/s/4zMxB8su3NiNJjY>

# Speakers

Anatoli Romaniouk  
Andrea Abba  
Christophe De La Taille  
Damien Neyret  
Dominique Robert  
Breton  
Edoardo Bossini  
Fabrizio Murtas  
Flavio Loddo  
Francesco Grancagnolo  
Francesco Licciulli  
George Iakovidis  
Gianluigi De Geronimo  
Giulietto Felici  
Hans Muller  
Imad Laktineh  
Jiajun Qin  
Jochen Kaminski

Jorgen Christiansen  
Julien Pancin  
Krzysztof Kasiński  
Luca Pizzimento  
Manuel Dionisio Da Rocha Rolo  
Marco Bregant  
Michael Campbell  
Mircea Iuliu Ciobanu  
Nicola Minafra  
Pascal Baron  
Paul Colas  
Richard Hall-Wilton  
Roberto Cardarelli  
Sorin Martoiu  
Stephane CALLIER  
Tomasz Andrzej Fiutowski  
Zhi Deng

Really thankful for the availability and interest to participate despite the very short notice.

# Lectures

<b>Welcome and Intro</b> <i>remote-only by Zoom</i>	<i>Leszek Ropelewski et al.</i> 14:00 - 14:05
<b>Introduction to Front-End Electronics for Particle Detectors</b> <i>remote-only by Zoom</i>	<i>Flavio Loddo et al.</i> 14:05 - 14:35
<b>Strategies for Integration between FE Electronics and Detectors</b> <i>remote-only by Zoom</i>	<i>Roberto Cardarelli</i> 14:35 - 15:05
<b>Design of a Front-End ASIC for the New Small Wheel - Front-end design in CMOS</b> <i>remote-only by Zoom</i>	<i>Gianluigi De Geronimo et al.</i> 15:05 - 15:35
<b>ROC chips for timing</b> <i>remote-only by Zoom</i>	<i>Christophe De La Taille</i> 15:35 - 16:05

# Applications

<b>Intro</b> <i>remote-only by Zoom</i>	<i>Eraldo Oliveri et al.</i> 16:20 - 16:25
<b>Time Projection Chambers</b> <i>remote-only by Zoom</i>	<i>Paul Colas et al.</i> 16:25 - 16:50
<b>Nuclear Physics</b> <i>remote-only by Zoom</i>	<i>Julien Pancin</i> 16:50 - 17:15
<b>Drift Chamber / Cluster Counting</b> <i>remote-only by Zoom</i>	<i>Francesco Grancagnolo et al.</i> 17:15 - 17:40
<b>Timing</b> <i>remote-only by Zoom</i>	<i>Edoardo Bossini</i> 17:40 - 18:05
<b>Neutrons</b> <i>remote-only by Zoom</i>	<i>Richard Hall-Wilton</i> 18:05 - 18:30

# Applications

<b>Calorimetry</b> <i>remote-only by Zoom</i>	<i>Imad Laktineh et al.</i> 14:00 - 14:25
<b>Tracking and Triggering</b> <i>remote-only by Zoom</i>	<i>Giulietto Felici</i> 14:25 - 14:50

# Discrete Electronics

<b>BIS78 RPC RO</b> <i>remote-only by Zoom</i>	<i>Luca Pizzimento et al.</i> 14:55 - 15:15
<b>APIC</b> <i>remote-only by Zoom</i>	<i>Hans Muller</i> 15:15 - 15:35

# Digitizers

<b>Fast Digitizer for Particle Physics</b> <i>remote-only by Zoom</i>	<i>Nicola Minafra</i> 16:10 - 16:25
<b>Architecture of the SAMPIC digitizer</b> <i>remote-only by Zoom</i>	<i>Dominique Robert Breton</i> 16:25 - 16:40
<b>Fast timing electronics R&amp;D based on waveform digitization</b> <i>remote-only by Zoom</i>	<i>Jiajun Qin et al.</i> 16:40 - 16:55

# Pixels

<b>Intro</b> <i>remote-only by Zoom</i>	<i>Jochen Kaminski</i> 16:55 - 17:00
<b>TimePix and MediPix</b> <i>remote-only by Zoom</i>	<i>Michael Campbell</i> 17:00 - 17:20
<b>Pixel Integration - GridPix</b> <i>remote-only by Zoom</i>	<i>Jochen Kaminski</i> 17:20 - 17:40
<b>Pixel Integration - GEMPix</b> <i>remote-only by Zoom</i>	<i>Fabrizio Murtas</i> 17:40 - 18:00
<b>Pixel chip development for tracking type gaseous detectors</b> <i>remote-only by Zoom</i>	<i>Anatoli Romaniouk</i> 18:00 - 18:15

# Linear ASICs

<b>Intro</b> <i>remote-only by Zoom</i>	<i>Sorin Martoiu</i> 14:00 - 14:30
<b>ROC (OMEGA) Family</b> <i>remote-only by Zoom</i>	<i>Stephane CALLIER et al.</i> 14:30 - 14:40
<b>VMM</b> <i>remote-only by Zoom</i>	<i>George Iakovidis</i> 14:40 - 14:50
<b>*XYTER</b> <i>remote-only by Zoom</i>	<i>Krzysztof Kasiński et al.</i> 14:50 - 15:00
<b>GEMROC (AGH)</b> <i>remote-only by Zoom</i>	<i>Tomasz Andrzej Flutowski</i> 15:00 - 15:10
<b>TIGER</b> <i>remote-only by Zoom</i>	<i>Manuel Dionisio DA ROCHA ROLO et al.</i> 15:10 - 15:20
<b>New ASIC (INFN TO)</b> <i>remote-only by Zoom</i>	<i>Manuel Dionisio DA ROCHA ROLO et al.</i> 15:20 - 15:30
<b>VFAT</b> <i>remote-only by Zoom</i>	<i>Francesco Licciulli</i> 15:30 - 15:40
<b>New ASIC (INFN Ba)</b> <i>remote-only by Zoom</i>	<i>Francesco Licciulli</i> 15:40 - 15:50
<b>AFTER/AGET</b> <i>remote-only by Zoom</i>	<i>Pascal Baron</i> 16:10 - 16:20
<b>SAMPA</b> <i>remote-only by Zoom</i>	<i>Marco Bregant</i> 16:20 - 16:30
<b>New ASIC (TPC)</b> <i>remote-only by Zoom</i>	<i>Damien Neyret et al.</i> 16:30 - 16:40
<b>WASA</b> <i>remote-only by Zoom</i>	<i>Zhi Deng et al.</i> 16:40 - 16:50
<b>PADI</b> <i>remote-only by Zoom</i>	<i>Mircea Iuliu Ciobanu</i> 16:50 - 17:00
<b>GEMINI</b> <i>remote-only by Zoom</i>	<i>Andrea Abba</i> 17:00 - 17:10

# TDC

<b>PicoTDC</b> <i>remote-only by Zoom</i>	<i>Jorgen Christiansen</i> 17:10 - 17:40
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# Lectures

Tuesday 15<sup>th</sup>, 2pm CEST

**Introduction to Front-End Electronics for Particle Detectors**

*Flavio Loddo et al.*

*remote-only by Zoom*

14:05 - 14:35

**Strategies for Integration between FE Electronics and Detectors**

*Roberto Cardarelli*

*remote-only by Zoom*

14:35 - 15:05

**Design of a Front-End ASIC for the New Small Wheel - Front-end design in CMOS**

*Gianluigi De Geronimo et al.*

*remote-only by Zoom*

15:05 - 15:35

**ROC chips for timing**

*Christophe De La Taille*

*remote-only by Zoom*

15:35 - 16:05

Front End Electronics for Particle Detectors and Front-End ASIC design

# Applications

Tue 15/6

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<b>Intro</b> <i>remote-only by Zoom</i>	<i>Eraldo Oliveri et al.</i> 16:20 - 16:25
<b>Time Projection Chambers</b> <i>remote-only by Zoom</i>	<i>Paul Colas et al.</i> 16:25 - 16:50
<b>Nuclear Physics</b> <i>remote-only by Zoom</i>	<i>Julien Pancin</i> 16:50 - 17:15
<b>Drift Chamber / Cluster Counting</b> <i>remote-only by Zoom</i>	<i>Francesco Grancagnolo et al.</i> 17:15 - 17:40
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<b>Neutrons</b> <i>remote-only by Zoom</i>	<i>Richard Hall-Wilton</i> 18:05 - 18:30

Wed 16/6

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<b>Calorimetry</b> <i>remote-only by Zoom</i>	<i>Imad Laktineh et al.</i> 14:00 - 14:25
<b>Tracking and Triggering</b> <i>remote-only by Zoom</i>	<i>Giulietto Felici</i> 14:25 - 14:50

Detector experts contributions on  
front end electronics subdivided by  
specific application fields

# Developments

Wed 16/6

## Discrete Electronics

<b>BIS78 RPC RO</b> <i>remote-only by Zoom</i>	<i>Luca Pizzimento et al.</i> 14:55 - 15:15
<b>APIC</b> <i>remote-only by Zoom</i>	<i>Hans Muller</i> 15:15 - 15:35

## Digitizers

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## Pixels

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<b>Pixel chip development for tracking type gaseous detectors</b> <i>remote-only by Zoom</i>	<i>Anatoli Romanouk</i> 18:00 - 18:15

Developers and  
ASIC designers  
contributions on  
developments  
and ASICs

Thu 17/6

## Linear Chips

<b>Intro</b> <i>remote-only by Zoom</i>	<i>Sorin Martoiu</i> 14:00 - 14:30
<b>ROC (OMEGA) Family</b> <i>remote-only by Zoom</i>	<i>Stephane CALLIER et al.</i> 14:30 - 14:40
<b>VMM</b> <i>remote-only by Zoom</i>	<i>George Iakovidis</i> 14:40 - 14:50
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<b>GEMINI</b> <i>remote-only by Zoom</i>	<i>Andrea Abba</i> 17:00 - 17:10
<b>PicoTDC</b> <i>remote-only by Zoom</i>	<i>Jorgen Christiansen</i> 17:10 - 17:40

# Few Practical Comments

- Workshop will not be registered
- We hope to have it as much interactive as possible:
  - Zoom Chat during the talk
  - Question Time at the end of the talk
  - Discussion Slots
  - Mail to conveners/organizers (last slide)



# Contacts

Silvia Dalla Torre

Leszek Ropelewski

Paul Colas

Eraldo Oliveri

Hans Muller

Nicola Minafra

Jochen Kaminski

Marco Bregant

Sorin Martoiu