LLRF2017

Low Level Radio Frequency Workshop

ALBA

FINAL PROGRAMME

BARCELONA

16-19 October

2017

www.llrf2017.org

TABLE OF CONTENTS

WELCOME

Dear Colleagues,

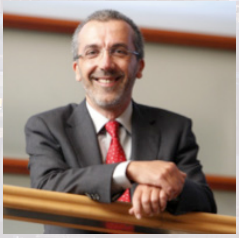
On behalf of the organising committee, we are pleased to welcome you to Barcelona (Spain) for the Low Level Radio Frequency Workshop which will be held from 16 - 19 October 2017 at the Hotel SB Diagonal Zero Barcelona.

Low Level RF Systems are an essential part of the RF systems of accelerators, controlling the RF structures and their power sources in order to maintain the beam accelerating voltage in ultimate levels of stability. The goal of the LLRF2017 workshops is to bring together worldwide experts in the field in order to share experiences, present status of work and discuss developments and prospects of the field.

This is the eighth workshop in LLRF and we hope to achieve the same level of success than past editions (Jefferson Lab, CERN, ORNL, KEK, DESY, SLAC/LBL and SSRF). The specialized topics covered during the oral presentations and the dedicated time to open discussions make this conference ideal from experts willing to share their ideas/experiences to beginners willing to learn from their experiences. The workshop program will also include tutorials on selected topics as well as a poster session and a visit to the ALBA Synchrotron Facility.

We welcome you to Barcelona!

Co-Chair
Francis Pérez



Chair
Angela Salom

Workshop Secretary
Daimí Pérez

COMMITTEES

ORGANISING COMMITTEE

Francis Pérez, *CELLS*

Daimí Pérez, *CELLS*

Angela Salom, *CELLS*

SCIENTIFIC COMMITTEE

Alessandro Ratti, *SLAC*

Mariusz Grecki, *DESY*

Brian E Chase, *FNAL*

Matthias U Liepe, *CORNELL*

Mark T. Crofford, *ORNL*

Tomasz Plawski, *JLAB*

Curt Hovater, *JLAB*

Shinichiro Michizono, *KEK*

Dmitry Teytelman, *Dimtel*

Stefan Simrock, *ITER*

Zheqiao Geng, *PSI*

Wolfgang Hofle, *CERN*

Kevin Smith, *BNL*

Yubin Zhao, *SINAP*

Lawrence Doolittle, *LBNL*

Angela Salom, *CELLS*

KEY INFORMATION

WORKSHOP VENUE

HOTEL SB DIAGONAL ZERO BARCELONA
Plaça de Llevant, s/n
Barcelona (Spain)

The venue is easily accessible by underground. The nearest subway station is El Maresme-Fòrum, Line 4 (Yellow line).

REGISTRATION HOURS

The Registration Desk is located on the 1st Floor (Foyer). Opening hours:

Sunday 15 October:	18:00 - 20:00
Monday 16 October :	08:30 - 18:00
Tuesday 17 October:	08:30 - 18:00
Wednesday 18 October:	08:30 - 12:00
Thursday 19 October:	08:30 - 13:00

BADGES / DELEGATE BAGS

All delegates must go to the Registration Desk to collect their badge and delegate bag. You are kindly requested to wear your badge at all times. The name badge is required for admission to scientific sessions, exhibits, poster and social events. At the Registration Desk, delegates will be provided with a copy of the final programme and a delegate bag.

KEY INFORMATION

INTERNET

Basic Internet connection will be provided at the Venue. There are two available networks.

Network: Diagonal Zero
Password: No password required

Network: SB Hotels
Password: zerosalones

LANGUAGE

The official language is English.

CERTIFICATE OF ATTENDANCE

All the certificates will be sent by email once the Workshop is over.

DISCLAIMER

All best endeavours will be made to present the programme as published. However, the Organisers and Barceló Congresos reserve the right to alter or cancel, without prior notice, any arrangements, timetables, plans or other items relating directly or indirectly to the Workshop, for any cause beyond its reasonable control. Delegates are advised to take out their own travel insurance and to extend their policy to cover personal possessions as the Workshop does not cover individuals against cancellation of bookings or theft or damage to belongings. Tours run by third parties may be subject to cancellation should the minimum numbers not be achieved.

PROGRAMME CHANGES

The organizers cannot be held responsible for any change in the programme due to unforeseen or external circumstances.

SOCIAL PROGRAMME

The Workshop includes a wide range of Social Events which are detailed below:

WELCOME RECEPTION

Details: Welcome Reception from 18:00-20:00
Date: Sunday 15 October 2017
Venue: Hotel SB Diagonal Zero, Exhibition area
Admission: Included in the registration fee.

WORKSHOP DINNER

Details: Dinner at Restaurant from 20:00-22:00
Date: Tuesday 17 October 2017
Venue: Restaurante Can Cortada
Admission: Included in the registration fee.
Transportation: 19:30h Bus departs from the Hotel SB Diagonal Zero to the Restaurant Can Cortada (Duration: 30 minutes approx.). Return to hotel after dinner (22.00-22.30h approx.)

TECHNICAL VISIT TO ALBA SYNCHROTRON

Details: Visit to ALBA Synchrotron from 12:30 - 16:30
Date: Wednesday 18 October 2017
Venue: ALBA Synchrotron
Admission: Included in the registration fee.
Transportation: 12:30 Delegates interested in visiting ALBA should be ready and wait in the reception area of the venue, Hotel SB Diagonal Zero. Bus departs at 12:45 to ALBA Synchrotron for a light lunch (13:30 - 14:30) and for the technical visit which will be carried out in groups of 20 pers. (14:30-16:30). Bus transfer at 16:30 from ALBA near to the Sagrada Familia, in the city of Barcelona, for the cultural tour (17:30 - 19:00). This will be the final stop.

SOCIAL PROGRAMME

CULTURAL VISIT TO THE SAGRADA FAMILIA

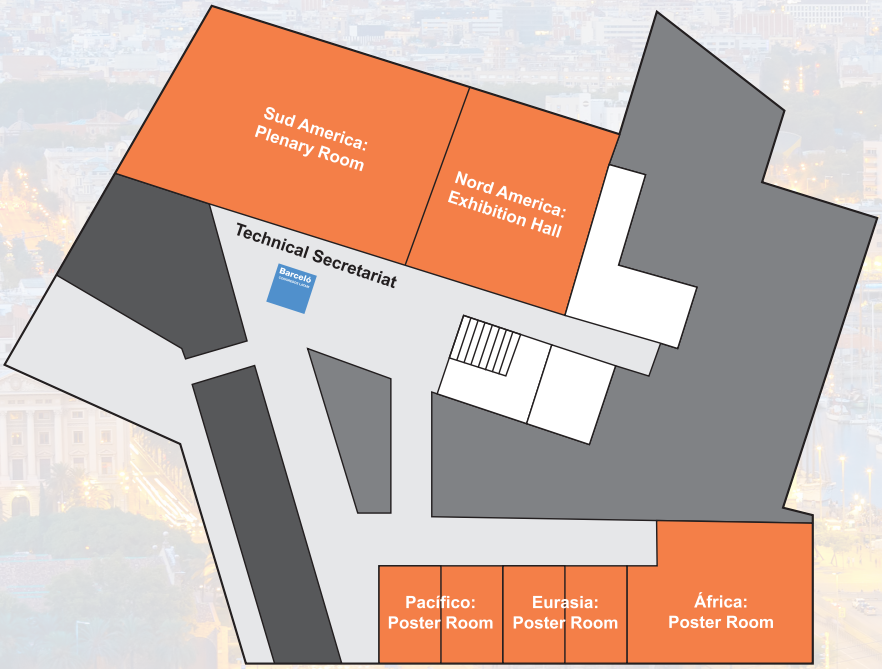
Details: Visit to the Sagrada Familia from 17:30-19:00
Date: Wednesday 18 October 2017
Venue: Sagrada Familia
Admission: Included in the registration fee.
Transportation: Delegates visiting the ALBA facility will be dropped off very near to the Sagrada Familia after the ALBA Technical Tour (17.30 approx.). Delegates wishing to go to the Sagrada Familia but not to ALBA will need to make their own way there and make their own travel arrangements. The nearest underground station to the venue, Hotel SB Diagonal Zero, is El Maresme-Fòrum. To arrive at the Sagrada Familia you need to get the yellow line (Line 4) and get off at the Stop La Pau. From here you need to change line to the purple line (Line 2) and get off at the Stop Sagrada Familia.
Meeting point with the tourist guides: Marina Street, corner Avenue Diagonal (10 minutes walking distance to Sagrada Familia)

CULTURAL VISIT TO CASA BATLLÓ

Details: Visit to Casa Batlló from 17:30-19:00
Date: Wednesday 18 October 2017
Venue: Casa Batlló
Admission: Included in the registration fee.
Transportation: Delegates visiting the ALBA facility will be dropped off in front of Casa Batlló after the ALBA Technical Tour (17.30 approx.). Delegates wishing to go to Casa Batlló but not to ALBA will need to make their own way there and make their own travel arrangements. The nearest underground station to the venue, Hotel SB Diagonal Zero, is El Maresme-Fòrum. To arrive at Casa Batlló you need to get the yellow line (Line 4) and get off at the stop La Pau. From here you need to change line to the purple line (Lin e 2) and get off at the stop Passeig de Gracia.
Meeting point with the tourist guides: In front of Casa Batllo (Address: Passeig de Gràcia 43, Barcelona).

VENUE FLOOR PLAN

FIRST FLOOR



INFORMATION FOR SPEAKERS & AUTHORS

ORAL PRESENTATIONS

The time allocated for each oral presentation is either 10 minutes including discussion or 15 minutes plus 5 minutes for discussion depending on the Session. The Presenting authors should arrive at the meeting room 15 minutes before the beginning of the session and introduce themselves to the chair.

POSTER PRESENTATIONS

Poster boards will be located on the First floor of the venue (Rooms Eurasia, Africa and Pacifico). The posters should be mounted on Tuesday morning before 11.00h and removed on Tuesday afternoon after 18.00h but before 18.30h. After this time, left over posters will be thrown away. Required material to fix the posters to the panels will be made available in the poster area. The presenting author must be next to the poster during the poster sessions

The maximum size of the poster must by 90 cm wide and 120 cm high. It must include the title, authors, affiliations and contact address and email.

SESSION´S ROOM

The session´s room will be equipped for Power-Point presentation only. Be sure to bring your presentation on a pen drive and deliver it to the technician during breaks, at least two hours before your session. Personal lap-tops are not allowed.

PUBLICATION AND ACCESSIBILITY OF ABSTRACTS

All accepted abstracts are published in the LLRF Final Programme.

PRACTICAL INFORMATION

BANKS AND ATM MACHINES

Many banks and ATM machines are located near to the Hotel as well as the Diagonal Mar Shopping Centre which is in walking distance to the venue. Foreign currencies can be exchanged at banks, which are normally open to the public from Monday to Friday from 8:30 until 14:00.

CURRENCY

The currency in Spain is the Euro (€). All payments related to your workshop registration should be made in Euro (€).

CREDIT CARDS

Most hotels, restaurants and shops in Barcelona accept the main credit cards (MasterCard, American Express and Visa).

MAP OF THE AREA

PRACTICAL INFORMATION

ELECTRICITY SUPPLY

The standard voltage in Spain is 230 V/50Hz. Plugs are continental style - two round pins.

EMERGENCY TELEPHONE NUMBERS

The emergency phone number is 112 for Spain.
The SOS number 112 can be dialled to reach emergency services - medical, fire and police - from anywhere in Europe. This Pan-European emergency number 112 can be called from any telephone (landline, pay phone or mobile cellular phone). Calls are free. It can be used for any life-threatening situation, including serious medical problems (accident, unconscious person, severe injuries, chest pain, seizure), any type of fire (house, car), life-threatening situations (crimes).

Medical emergency:	061
Fire brigade:	080
City police:	092
City information:	010
Barcelona Tourist Office:	933 689 700

VALUE ADDED TAX (VAT)

VAT will be charged at the official rate prevailing at the time of invoice. Neither the Organisation nor Barceló Congresos accepts responsibility for any changes, which may occur due to an official increase in VAT.

VISA INFORMATION

Delegates travelling to Barcelona from outside the EU must ensure that they have the proper documentation before departure. Visa letters are available through the Workshop Administrative Secretariat - Barceló Congresos - (llrf2017@barcelocongresos.com).

TRANSPORTATION IN BARCELONA

PUBLIC TRANSPORT

The Hotel SB Diagonal Zero Barcelona, venue of the LLRF 2017 Workshop, is connected by public transport with all the city areas and has some taxi ranks and parking places nearby. It has also an easy and quick access from the city centre.

AIRPORT

The Barcelona International Airport, called El Prat de Llobregat (often referred to simply as El Prat) is located 12 km south-west of Barcelona and 20 km from the congress venue. To reach the Venue from the Airport, you can use the following means of transport:

UNDERGROUND

Underground Line L9 Sud connects the Barcelona International Airport with the Barcelona subway network. The nearest station to the venue is El Maresme-Forum, Line L4-Yellow which is at just 350 m. from the hotel (4 minutes by foot). A special ticket (4,50 €) must be purchased to leave the airport and use the subway network.

TRAIN

The Railway Network Line R2 Nord connects Terminal T2 with the city centre (there is a complimentary shuttle bus from Terminal-T1 to Terminal-T2). The train operates every 30 minutes, approx. from 6.00 to 23.00 h. The travel time is 32 minutes to Passeig de Gràcia station. From there, you can directly get to the Hotel with the underground Line L4-Yellow (El Maresme-Forum station). A single ticket (4,10 €) can be used for the entire trip.

TRANSPORTATION IN BARCELONA

TAXI

You can find taxi points in front of both terminals T1 and T2. The transfer by taxi from the airport to the Hotel takes approximately 30/35 minutes depending on traffic. It costs between 30 € and 35 € depending on the time of day.

PUBLIC TRANSPORT PASSES

Multiple public transportation passes can be bought in all underground stations. Passes can be used on both the underground and buses. The best option is the 'ten-ride card' (T-10). The current price for a single ride ticket is 2,15 € and 9,95 € for a T-10 card.

BARCELONA TRAVEL CARDS: HOLA BCN!

These cards allow unlimited journeys on Barcelona public transport over 2, 3, 4 or 5 consecutive days on a single ticket. They also include underground trip between the airport and the city centre.

Programme at a glance

	Sunday 15 October	Monday 16 October	Tuesday 17 October	Wednesday 18 October	Thursday 19 October
09:00 - 09:30		Welcome & Key Note Presentation	Tutorial	Tutorial	Tutorial
09:30 - 09:50					Super conducting RF
09:50 - 10:30		Lab Talks I	RF Amplifiers & Controls	HW and Timing	
10:30 - 11:00		Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00 - 12:30		Lab Talks II	Poster Session	Beam Phase Calibration & drift compensation	Control models & simulations
					Key note presentation & Closing Remarks
12:30 - 14:00		Lunch	Lunch	Bus Transfers	
14:00 - 14:45		Tutorial	Software and RF Control	Light Lunch	
14:45 - 15:45		Systems and operations	Poster Session	ALBA Visit	
15:45 - 16:15		Coffee Break	Coffee Break		
16:15 - 17:30		Systems and operations	Poster Session	Bus Transfers	
17:30 - 18:00					
18:00 - 19:00	Registration and Welcome Cocktail		Labdoo Presentation	Social Event: Cultural Visit	
19:00-20:00			Bus Transfers		
20:00-22:00			Workshop Dinner		

SCIENTIFIC PROGRAMME

SUNDAY 15 OCTOBER 2017

18:00-20:00 **REGISTRATION AND WELCOME COCKTAIL (FOYER)**

MONDAY 16 OCTOBER 2017

09:00-09:50 **INTRODUCTION (MEETING ROOM SUD AMERICA)**

Chair: *Angela Salom*

09:00-09:05 Welcome
Angela Salom, CELLS, Spain

09:05-09:50 Key note presentation: Accelerators in Spain
Caterina Biscari, CELLS, Spain

09:50-10:30 **ORAL SESSION 1 - LAB TALKS I (MEETING ROOM SUD AMERICA)**

Chair: *Angela Salom*

O-1
09:50-10:00 ORNL Status report and new projects
Mark Crofford, Oak Ridge National Laboratory, United States of America

O-2
10:00-10:10 LLRF Status and activities at PSI
Roger Kalt, Paul Scherrer Institut, Switzerland

O-3
10:10-10:20 SSRF Status and new projects
Zhao Yubin, Shanghai Institute of Applied Physics, China

O-4
10.20-10:30 SLAC Status and new projects
Alex Ratti, SLAC, United States of America

10:30-11:00 **COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)**

11:00-12:30 **ORAL SESSION 2 - LAB TALKS II (MEETING ROOM SUD AMERICA)**

Chair: *Alex Ratti*

O-5
11:00-11:10 LLRF devolopments at KEK and J-Parc
Masahito Yoshii, KEK/J-PARC, Japan

O-6
11:10-11:20 BNL Status and new projects
Kevin Smith, Brookhaven National Laboratory, United States of America

O-7
11:20-11:30 Status of CERN LLRF - Operation and New Developments
Wolfgang Hoefle, CERN, Switzerland

O-8
11:30-11:40 Recent Developments of the Cornell LLRF System
Nilanjan Banerjee, Cornell University, United States of America

O-9
11:40-11:50 Fermilab Operations and Future Projects
Brian Chase, Fermilab, United States of America

O-10
11:50-12:00 High precision RF control at LBNL
Gang Huang, Lawrence Berkeley National Laboratory, United States of America

O-11
12:00-12:20 Design and Implementation of the LLRF System for LCLS-II
Andrew Benwell, SLAC, United States of America

12:30-14:00 LUNCH BREAK

14:00-15:45 SYSTEMS AND OPERATIONS (MEETING ROOM SUD AMERICA)

Chair: *Wolfgang Hoefle*

14:00-14:45 Tutorial:LLRF XFEL: Automated commissioning, deployment and systems integration
Julien Branlard, DESY, Germany

14:45-15:15 Invited Speaker: ESS LLRF
Anders Johansson, Lund University, Sweden

15:15-15:45 Invited Speaker: CW LLRF for the BESSY-II Variable Pulse Length Upgrade
Pablo Echevarria, Helmholtz Zentrum Berlin, Germany

15:45-16:15 COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)

16:15-18:00 ORAL SESSION 3 - SYSTEMS AND OPERATIONS (MEETING ROOM SUD AMERICA)

Chair: *Brian Chase*

O-12
16:15-16:35 LLRF operation and performance of the European XFEL
Mathieu Omet, DESY, Germany

O-13
16:35-16:55 Optimization Algorithms and Procedures for SwissFEL LLRF System
Zheqiao Geng, Paul Scherrer Institut, Switzerland

O-14
16:55-17:15 First commissioning results of CSNS RCS LLRF system
Xiao Li, Institute Of High Energy Physics, Chinese Academy of Sciences Beijing, China

O-15
17:15-17:35 LLRF for the PIP-II Accelerator at Fermilab
Jonathan Edelen, Fermilab, United States of America

O-16
17:35-17:55 LCLS-II LLRF prototype testing and characterization
Lawrence Doolittle, FNAL, United States of America

TUESDAY 17 OCTOBER 2017

09:00-10:30 **ORAL SESSION 4 - RF AMPLIFIERS & CONTROLS (MEETING ROOM SUD AMERICA)**

Chair: *Francis Pérez*

09:00 - 09:50 Tutorial RFamplifiers Overview and Impact on LLRF control loops
Eric Montesinos, CERN, Switzerland
O-17

09:50-10:10 Wideband Control for Magnetron Driven Cavities
Brian Chase, Fermilab, United States of America
O-18

10:10-10:30 LHC LLRF upgrade: Cavity Phase modulation to reduce klystron power in physics
Philippe Baudrenghien, CERN, Switzerland

10:30-11:00 **COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)**

11:00-12:30 **POSTERS SESSION (MEETING ROOMS AFRICA-EURASIA-PACIFICO)**

12:30-14:00 **LUNCH BREAK**

14:00-15:30 **ORAL SESSION 5 - SOFTWARE AND RF CONTROL (MEETING ROOM SUD AMERICA)**

Chair: *Geng Zhequiao*

14:00-14:30 Invited Speaker: Integrated operation of LLRF and bunch-by-bunch feedback systems of ANKA
Edmund Blomley, Karlsruhe Institute of Technology, Germany
O-19

14:30-14:50 Microphonics Compensation for Low Bandwidth SRF Cavites in the CBETA ERL
Nilanjan Banerjee, Cornell University, United States of America
O-20

14:50-15.10 A prototype system of multiharmonic vector voltage control for the J-PARC rapid cycling synchrotron
Fumihiko Tamura, J-PARC Center, Japan
O-21

15:10-15:30 A New Damper for Coupled-Bunch Instabilities caused by the accelerating mode at SuperKEKB
Kouki Hirosawa, KEK, Japan

15:30-15:45	**POSTERS SESSION (MEETING ROOMS AFRICA-EURASIA-PACIFICO)**
15:45-16:15	**COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)**
16:15-18:00	**POSTERS SESSION (MEETING ROOMS AFRICA-EURASIA-PACIFICO)**
18:00-18:15	**PRESENTATION LABDOO (MEETING ROOM SUD AMERICA)**
19:30-20:00	**BUS TRANSFERS**
20:00-22:00	**WORKSHOP DINNER (RESTAURANT CAN CORTADA)**

WEDNESDAY 18 OCTOBER 2017

09:00-10:30 **ORAL SESSION 6 - HW AND TIMING (MEETING ROOM SUD AMERICA)**

Chair: *Mark Crofford*

09:00-09:50 Tutorial: Analogue and Signal processing for Low Noise LLRF Front Ends
Lawrence Doolittle, LBNL, United States of America
O-22

09:50-10:10 Introducing Fixed Frequency Clock Operation on the CERN VXS LLRF Platform
Johannes Molendijk, CERN, Switzerland
O-23

10:10-10:30 LLRF synchronization based on White-Rabbit. First results of the system in the IFMIF/EVEDA RFQ conditioning in Rokkasho
Miguel Mendez, Seven Solutions SL, Spain

10:30-11:00 **COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)**

11:00-12:30 **ORAL SESSION 7 - BEAM PHASE CALIBRATION & DRIFT COMPENSATION (MEETING ROOM SUD AMERICA)**

Chair: *Kevin Smith*

11:00-11:30 Invited Speaker: Jitter Measurement to 10ppm Level for Pulsed RF Power Amplifiers 3 - 12GHz
Christopher Gough, Paul Scherrer Institute, Switzerland
O-24

11:30-11:50 Beam Synchronous Processing: Fixed Clock and RF Regeneration. New Paradigms for CERN SPS LLRF
Javier Galindo Guarch, CERN, Switzerland
O-25

11:50-12:10 Drift calibration for the European XFEL
Frank Ludwig, DESY, Germany
O-26

12:10-12:30 Automatic phase calibration for RF cavities using beam-loading signals
Jonathan Edelen, Fermilab, United States of America

12:45 **BUS TRANSFER TO ALBA**

13:30-14:30 **LIGHT LUNCH**

14:30-16:30 **VISITING IN GROUPS OF 20 PERS. (1 HR LONG)**

16:30-17:30 **BUS TRANSFER**

17:30-19:00 **SOCIAL EVENT: VISIT TO SAGRADA FAMILIA / CASA BATLLÓ**

THURSDAY 19 OCTOBER 2017

09:00-10:30 **ORAL SESSION 8 - SUPER CONDUCTING RF (MEETING ROOM SUD AMERICA)**

Chair: Curt Hovater

09:00-09:30 Tutorial: Microphonics active control and compensation possibilities
Joshua Curtis-Einstein, Fermilab, United States of America

O-27

09:30-09:50 The challenge of operating superconducting cavity at 5 Hz bandwidth
Daniel Valuch, CERN, Switzerland

O-28

09:50-10:10 Recent Progress in Low Level RF System of the 1.3GHz Superconducting Accelerator at Peking University
Liwen Feng, Peking University, China

O-29

10:10-10:30 CW operation of XFEL cryomodule – field regulation performance study for high QI resonators
Wojciech Cichalewski, DMCS-LUT, Poland

10:30-11:00 **COFFEE BREAK (MEETING ROOM NORD AMERICA + FOYER)**

11:00-12:00 **ORAL SESSION 9 - CONTROL MODELS & SIMULATIONS (MEETING ROOM SUD AMERICA)**

Chair: *Tomasz Plawski*

O-30

11:00-11:20 Towards a better understanding of the field control problem
Olof Troeng, Lund University, Sweden

O-31

11:20-11:40 APS-Upgrade RF System Simulations and Plans
Tim Berenc, Argonne National Laboratory, United States of America

O-32

11:40-12:00 Model Based Fault Diagnosis for the LLRF Cavity Signals of the European-XFEL
Ayla Nawaz, DESY, Germany

12:00-12:50 **KEYNOTE PRESENTATION (MEETING ROOM SUD AMERICA)**

The ITER project and its impact on Technology and Present Society
Stefan Simrock, ITER, France

12:50-13:00 **CLOSING REMARKS (MEETING ROOM SUD AMERICA)**

POSTERS

TUESDAY 17 OCTOBER 2017

Poster session: 11:00 - 12:30 and 16.15 - 18.00

P-1
Dual Frequency Laser Gun LLRF System
Tomasz Plawski[1], Ramakrishna Bachimanchi[1], Manuel Diaz[1], Curt Hovater[1], Scott Higgins[1], Clyde Mounts[1], Chad Seaton[1], Dave Seidman[1]
[1]Jefferson Lab, Newport News, United States

P-2
Upgrading the J-PARC Ring LLRF systems
Masahito Yoshii[1], *Fumihiko Tamura*[2] *, Yasuyuki Sugiyama*[1]
[1]KEK/J-PARC, 2J-PARC/JAEA, Japan

P-3
Renewal and upgrade of the fast beam-based feedback system at FLASH
Sven Pfeiffer[1]
[1]DESY, Hamburg, Germany

P-4
MicroTCA.4-based LLRF for the superconducting CW Linac ELBE - Status and Outlook
Michael Kuntzsch[1], Reinhard Steinbrück[1], Rico Schurig[1], Martin Hierholzer[2], Martin Killenberg[2], Christian Schmidt[2], Cagil Gümüs[2], Łukasz Butkowski[2], Matthias Hoffmann[2], Chris Iatrou[3], Julian Rahm[3], Igor Rutkowski[4], Maciek Grzegrzółka[4]
[1]Helmholtz-Zentrum Dresden-Rossendorf HZDR, Dresden, Germany, [2]DESY, Hamburg, Germany, [3]Technische Universität Dresden, Dresden, Germany, [4]Warsaw University of Technology, Warzsaw, Poland

P-5
The NSLS-II digital RF field controller design and operational experience
James Rose[1], Brian Holub[1], Hengjie Ma[1], Carlos Marques[1], Jorge Oliva[1], Nathan Towne[1]
[1]NSLS-II, Brookhaven Lab, Upton, United States

P-6
Overview and system requirements for SARAF-LINAC LLRF systems
Lu Zhao[1], Guillaume Ferrand[1], Michel Luong[1], Romuald Duperrier[1], Nicolas Pichoff[1], Claude Marchand[1]
[1]CEA Saclay, Gif-sur-yvette, France

P-7
Preliminary measurements of amplitude and phase in the top-implart proton linear accelerator
Vincenzo Surrenti[1], Alessandro Ampollini[1], Giulia Bazzano[1], Michele Arturo Caponero[1], Paolo Nenzi[1], Luigi Picardi[1], Andrea Polimadei[1], Concetta Ronsivalle[1], Emiliano Trinca[1]
[1]Enea, Frascati, Italy

P-8
RF Systems for the Low Energy RHIC Electron Cooling Project
Kevin Mernick[1], Michael Blaskiewicz[1], Thomas Hayes[1], Geetha Narayan[1], Fred Severino[1], Kevin Smith[1],Binping Xiao[1],Tianmu Xin, Wencan Xu[1], Alex Zaltsman[1]
[1]Brookhaven National Laboratory, Upton, United States

P-9
Status of the LLRF Development for the ESR Barrier-Bucket System
Jens Harzheim[1], Frey Michael[2], Kerstin Groß[1], Harald Klingbeil[1,2], Dilyana Domont-Yankulova[1]
[1]Tu Darmstadt (temf), Darmstadt, Germany, [2]GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany

P-10
Overview of LLRF System for iBNCT Accelerator
Zhigao Fang[1], Kenta Futatsukawa[1], Yuji Fukui[1], Takashi Obina[1], Yosuke honda[1], Feng Qiu[1], Takashi Sugimura[1], Shinichiro Michizono[1], Shozo Anami[1], Fujio Naito[1], Hitoshi Kobayashi[1], Toshikazu Kurihara[1], Sasaharu Sato[1], Tsukasa Miyajima[1], Toshiyuki Ohba[2], Nobuaki Nagura[2]
[1]Kek, Tsukuba, Japan, [2]Nippon Advanced Technology CO., LTD., naka, Japan

P-11
LLRF System for the Fermilab Muon g-2 and Mu2e Projects
Philip Varghese[1], Brian Chase[1]
[1]Fermilab, Batavia, United States

P-12
A MTCA.4 based digital LLRF system for the GSI UNILAC
Jens Zappai[1], Bernhard Schlitt[1], Alexander Schnase[1], Gerald Schreiber[1]
[1]GSI Helmholtzzentrum Für Schwerionenforschung GmbH, Darmstadt, Germany

P-13
Progress on the ISIS synchrotron digital low level RF system upgrade
Andrew Seville[1], David Allen[1], Robert Mathieson[1]
[1]STFC, Chilton, Didcot, United Kingdom

P-14
Operational experience of ALBA's Digital LLRF at SOLARIS Light Source
Pawel Borowiec[1], Angela Salom[2], Francis Perez[2], Lars Malmgren[3], Åke Andersson[3], Robert Lindvall[3], Aleksandar Mitrovic[3], Adriana Wawrzyniak[1], Paulina Klimczyk[1], Maciej Kopec[1], Arkadiusz Kisiel[1], Lukasz Dudek[1], Wojciech Kitka[1]
[1]Jagiellonian University, Synchrotron Solaris, Krakow, Poland, [2]ALBA-CELLS Synchrotron, Cerdanyola del Vallès, Spain, [3]MAX IV Laboratory, Lund University, Lund, Sweden

P-15
Evolution and up-graduation of LLRF System of Indus-1 Synchrotron Radiation Source
Nitesh Tiwari[1]
[1]Raja Ramanna Centre for Advanced Technology, Indore, India

P-16
Progress of the CSNS/RCS LLRF control system
Hong Sun[1]
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P-17
Design of LLRF system for MA-loaded cavity of HIAF
Yan Cong[1]
[1]Institute Of Modern Physics, Chinese Academy of Sciences, Lanzhou, China

P-18
3GHz Linac RF measurement system using micro-TCA technology
Peter Corlett[1], Simin Chen[1], Ross Hogan[1], Greg LeBlanc[1], Adam Michalczyk[1], Andrew Starritt[1], Karl Zingre[1]
[1]Australian Synchrotron, Melbourne, Australia

P-19
Temperature stabilized LLRF control for new generation linear accelerators
Robert Cerne[1], **Borut Baricevic**[1], Gasper Jug[1], Primoz Lemut[1], Zarko Lestan[1], mag. Borut Repic[1], Matej Oblak[1], Luka Rahne[1], Damijan Skvarc[1], Luca Piersanti[2], Alessandro Gallo[2], Marco Bellaveglia[2]
[1]Instrumentation Technologies d.d., Solkan, Slovenia, [2]INFN-LNF, Frascati, Italy

P-20
Low-Level RF Control System Development for the HIMM Linac
Ruifeng Zhang[1], Yan Cong[1]
[1]Imp, Lanzhou, China

P-21
Digital Low Level RF Systems for Diamond Light Source
Chris Christou[1], Pengda Gu[1], Paul Hamadyk[1], David Spink[1], Angela Salom[2], Francis Pérez[2]
[1]Diamond Light Source, Didcot, United Kingdom, [2]ALBA-CELLS Synchrotron, Cerdanyola del Vallès, Spain

P-22
LLRF system for a novel, compact, superconducting cyclotron for radioisotope production
Daniel Gavela Pérez[1], José Miguel Barcala[1], Antonio Esteve[1], Ángel Guirao[1], Jesús Marín[1], Concepción Oliver[1], Luis García-Tabares[1], Fernando Toral[1], Cristina Vázquez[1], Francis Pérez[2], Ángela Salom[2]
[1]Ciemat, Madrid, Spain, [2]CELLS, Cerdanyola del Vallès, Spain

P-23
Experience with the PIP-II Injector Test
Jonathan Edelen[1], Brian Chase[1], Joshua Einstein-Curtis[1], Edward Cullerton[1], Philip Varghese[1]
[1]Fermilab, Batavia, United States

P-24
Overview of Improvements for the J-PARC Linac LLRF System
Kenta Futatsukawa[1]
[1]High Energy Accelerator Research Organization, Tsukuba, Japan

P-25
Current status of LLRF development at RISP
Hyojae Jang[1], Kyungtae Seol[1], Oh Ryong Choi[1], Do Yoon Lee[1], Ki Taek Son[1], Hoe Chun Jeong[1]
[1]IBS, Daejeon, South Korea

P-26
A LLRF Hardware Testbench for LCLS-II
Jorge Diaz Cruz[1,2], **Andrew Benwell**[2], Alessandro Ratti[2], Matt Boyes[2], Lawrence Doolittle[3], Carlos Serrano[3], Gang Huang[3]
[1]Colorado State University, Fort Collins, United States, [2]SLAC National Accelerator Laboratory, Menlo Park, United States, [3]LBNL, Berkeley, United States

P-27
Racks, A Comfortable Home for LCLS-II LLRF
Andrew Benwell[1], Matt Boye[s1], Mike DiSalvo[1], John Hugyik[1], John Krzaszczak[1], Andrew McCollough[1], Alex Ratti[1], Lawrence Doolittle[2], Carlos Serrano[2], Brian Chase[3], Curt Hovater[4]
[1]SLAC, Menlo Park, USA, [2]LBNL, Berkeley, USA, [3]FNAL, Batavia, USA, [4]JLAB, Newport News, USA

P-28
Preliminary Commissioning Plans for the LCLS-II LLRF System
Andrew Benwell[1], Chris Adolphsen[1], Matt Boyes[1], Jorge Diaz-Cruz[1], Paul Emma[1], Alex Ratti[1], John Schmerge[1], Lawrence Doolittle[2], Gang Huang[2], Carlos Serrano[2], Brian Chase[3], Josh Einstein[3], Ramakrishna Bachimanchi[4], Curt Hovater[4]
[1]SLAC, Menlo Park, USA, [2]LBNL, Berkeley, USA, [3]FNAL, Batavia, USA, [4]JLAB, Newport News, USA

P-29
Update on FRIB LLRF development and production
Shen Zhao[1], Dan Morris[1], Harsh Maniar[1]
[1]Facility For Rare Isotope Beams, Michigan State University, East Lansing, United States

P-30
Beam loading and LLRF considerations for FCC-ee
Andrew Butterworth[1, R], Calaga[1], J. Esteban-Mueller[1], I. Karpov[1]

P-31
Adaptive beam loading compensation in room temperature bunching cavities
Jonathan Edelen[1], Brian Chase[1], Edward Cullerton[1], Philip Varghese[1]
[1]Fermilab, Batavia, United States

P-32
Analysis of Iterative Learning Control in Frequency domain
Ken Fong[1], Mike Laverty[1], Qiwen Zheng[1]
[1]Triumf, Vancouver, Canada

P-33
Energy-optimal cavity filling
Olof Troeng[1], Bo Bernhardsson[1], Anders J Johansson[1]
[1]Lund University, Sweden

P-34
Automation of RF Cavity Conditioning
Roger Kalt[1], Jürgen Alex[1], Florian Löhl[1]
[1]Paul Scherrer Institut, Villigen PSI, Switzerland

P-35
ApplicationCore: A Framework for Modern Control Applications at the Example of a Facility Independent LLRF Server
Martin Hierholzer[1], Martin Killenberg[1], Geogin Varghese[1], Nadeem Shehzad[1], Michele Viti[1], Sebastian Marsching[2], Adam Piotrowski[3], Christian Schmidt[1], Ludwig Petrosyan[1], Tomasz Kozak[1], Pawel Predki[4], J. Wychowaniak[4], Adam Dworzanski[5], Krzysztof Czuba[5]
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P-36
Digital LLRF control system on BEPC II
Wang Mu Yuan[1]
[1]Institute Of High Energy Physics Institution, Beijng, China

P-37
Simulation of microphonic effects in high QI TESLA cavities during CW operations
Andrea Bellandi[1], Julien Branlard[1], Holger Schlarb[1], Christian Schmidt[1], Sven Pfeiffer[1]
[1]Desy, Hamburg, Germany

P-38
EPICS and VHDL developments in the LLRF for MYRRHA Project's RFQ prototype.
Joly Christophe[1], **Sarlin Wladimir**[1], Le Ster Thomas[1]
[1]Cnrs-ipn, Orsay, France

P-39
Resonance Frequency Tuning of an RF Cavity through Sliding Mode Extremum Seeking
Ramona Leewe[1], Ken Fong[1], Zahra Shahriari[1]
[1]TRIUMF, Vancouver, Canada

P-40
STARFISH-PY: A Versatile Toolchain for the Analysis of Synchrotron RF Systems' Data
Dieter Lens[1], Harald Klingbeil[1,2]
[1]GSI, Darmstadt, Germany, [2]Technische Universität Darmstadt, Darmstadt, Germany

P-41
Pulsed Digital LLRF Control System for Sub Harmonic Pre-Buncher of IR-FEL
Pritam S Bagduwal[1], Nitesh Tiwari[1], Dheeraj Sharma[1], Mahendra Lad[1]
[1]Raja Ramanna Centre For Advanced Technology, Indore, India

P-42
DSP Implementation of an Iterative Learning Controller
Michael Laverty[1], Ken Fong[1], Qiwen Zheng[1]
[1]*Triumf, Vancouver, Canada*

P-43
A noise suppression method based on system identification for the HEPS-TF 166.6 MHz LLRF system
Qunyao Wang[1], Haiying Lin[1], Pei Zhang[1], Yi Sun[1], Guangwei Wang[1], Muyuan Wang[1]
[1]*Institute of High Energy Physics, Beijing, China*

P-44
Detuning, RF stability and transient beam-loading studies of RF control for the BESSY VSR higher harmonic SC Cavities
Axel Neumann[1]
[1]*Helmholtz Zentrum Berlin, Berlin, Germany*

P-45
Kalman filter implementation by MTCA4.0 for gun cavity detuning compensation
Andriy Ushakov[1], Axel Neumann[1], Pablo Echevarria[1]
[1]*Helmholtz-Zentrum Berlin, Berlin, Germany*

P-46
Digital Low Level RF control for Advanced Light Source
Qiang Du[1], Kenneth Baptiste[1], Michael Betz[1], Massimiliano Vinco[1], **Lawrence Doolittle**[1], Gang Huang
[1]*Lawrence Berkeley National Lab, Berkeley, United States*

P-47
BIDS, the open source building blocks for a high precision RF control system
Gang Huang[1], Lawrence Doolittle[1], Qiang Du[1], Carlos Serrano[1]
[1]*Lawrence Berkeley National Laboratory, Berkeley, United States*

P-48
Exploring possibilites for active michrophonic compensation of BNL SRF cavities
Freddy Severino[1], Thomas Hayes[1], Kevin Mernick[1], Geetha Narayan[1], Salvatore Polizzo[1], Carlos Ramirez[1], Kevin S Smith[1], Alexander Zaltsman[1]
[1]*Brookhaven National Laboratory, Upton, United States*

P-49
A novel double sideband-based phase averaging line
Zhenyang Lin[1]
[1]*Haidian, Beijing, China*

P-50
FRIB LLRF control: issues and improvements
Shen Zhao[1], Dan Morris[1], Harsh Maniar[1]
[1]*Facility For Rare Isotope Beams, Michigan State University, East Lansing, United States*

P-51
VSWR Protection System and Cavity Frequency Tuning System for RF Power Source at CSNS LINAC
Zhexin Xie[1,2], Zhenchen Mu[1,2], Linyan Rong[1,2], Wenzhong Zhou[1,2], Bo Wang[1,2], Maliang Wan[1,2], Meifei Liu[1,2], Xinan Xu[1,2], Jian Li[1,2], Zonghua Zhang[1,2], Jimin Qiao[1,2]
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P-52
High Density Mixed Signal Hardware Design for Scientific Measurement and Control
Daniel Van Winkle[1], Josef Frisch[1], Steve Smith[1], John Dusatko[1]
[1]*Slac National Accelerator Laboratory, Menlo Park, United States*

P-53
Upgrade of the MicroTCA.4 based LLRF down-converter series for up to 6GHz operation frequency.
Matthias Hoffmann[1], Uros Mavric[1], Frank Ludwig[1], Holger Schlarb[1]
[1]*DESY, Hamburg, Germany*

P-54
LLRF for the RFQ prototype of the MYRRHA project
Christophe Joly[1], Thomas Lester[1], Wladimir Sarlin[3], Beng-Yun Ky[1], Jean-François Yaniche[1], Sylvain Berthelot[1], Holger Podlech[2], Dirk Vandeplassche[3]
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P-55
Evaluation of the extension of the MTCA.4 board connectivity to the rear side of crates
Uros Mavric[1], Michael Fenner[1], Julien Branlard[1], Holger Schlarb[1], Dariusz Makowski[2], Aleksander Mielczarek[2], Filip Makowski[2]
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P-56
NSLS-II LINAC RF Control System: Requirement and Implementation
Hengjie Ma[1], James Rose[1]
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P-57
LLRF Applications and Advancement of MicroTCA Technology
Cagil Gumus, Thomas Walter, Christian Schmidt, Konrad Przygoda, Martin Hierholzer
[1]DESY, Hamburg, Germany

P-58
The upgrade of J-PARC LINAC LLRF system
Song Li [1]
[1]Japan Proton Accelerator Research Complex (J-PARC), 2-4 Shirakata, Tokai-mura, Naka-gun, Ibaraki 319-1195, Japan

P-59
LLRF Upgrade Plans for PSI's Proton Accelerator
Andreas Hauff[1]
[1]Paul Scherrer Institut, Villigen, Switzerland

P-60
LLRF controls in SuperKEKB Phase-1 commissioning
Tetsuya Kobayashi[1], Kazunori Akai[1], Kota Nakanishi[1], Michiru Nishiwaki[1], Shin-ichi Yoshimoto[1], Kouki Hirosawa[2]
[1]KEK, Tsukuba, Japan, [2]SOKENDAI, Tsukuba, Japan

P-61
Hardware Concept for the SLS 2 LLRF Systems
Kristian Ambrosch[1], Mario Jurcevic[1], Roger Kalt[1]
[1]Paul Scherrer Institute, Villigen, Switzerland

P-62
Linac4 LLRF - An update
Robert Borner[1], Philippe Baudrenghien, Bartosz Bielawski, Javier Galindo, Gregoire Hagmann, Bruno Kremel
[1]Cern, Geneva, Switzerland

P-63
Additive phase-noise in frequency conversion in LLRF systems
Igor Rutkowski[1]
[1]Warsaw University Of Technology, ISE, Warsaw, Poland

P-64
Commissioning and performance of a phase-compensated optical link for the AWAKE experiment at CERN
Diego Barrientos[1], John Molendijk[1], Thomas Bohl[1], Andy Butterworth[1], Heiko Damerau[1], Wolfgang Höfle[1], Michael Jaussi[1]
[1]CERN, Geneva, Switzerland

P-65
A 1 GHz RF Trigger Unit implemented in FPGA logic
Diego Barrientos[1], John Molendijk[1], Gregoire Hagmann[1]
[1]CERN, Geneva, Switzerland

P-66
Upgrade of the Beam-synchronous RF Source System in the CERN PS
Heiko Damerau[1], Damien Perrelet[1]
[1]CERN, Geneva, Switzerland

P-67
The structure and status of the LLRF System for PAL-XFEL
Jinyul Hu[1], W. H. Hwang[1], G.-Y. Moon[1], H.-S. Kang[1], H.-S. Lee[1], C.-K. Min[1], H. Heo[1], O. J. Kim[2], H. S. Lee[2], Y. S. Kim[3], J. H. Chang[3], J. S. Han[3]
[1]Pohang Accelerator Laboratory (PAL), Pohang, South Korea, [2]Mobiis Co., Ltd, Seoul, South Korea, [3]RFPT Co., Ltd, Anyang, South Korea

P-68
Polish in-kind Contribution to ESS LLRF Control System
Krzysztof Czuba[1], Szewiński Jarosław[2], Cichalewski Wojciech[3], Andrzej Napieralski[3], Prof Adam Abramowicz[1], Zbigniew Gołębiewski[2], Dariusz Makowski[3], Ignacy Kudla[2], Paweł Krawczyk[2], Marcin Gosk[2], Maciej Grzegrzołka[1], Igor Rutkowski[1]
[1]Warsaw University Of Technology, Warsaw, Poland, [2]NCBJ, Otwock/Świerk, Poland, [3]Technical University of Lodz, Lódź, Poland

P-69
Cavity simulator for LLRF Hardware-in-the-Loop Simulations
Eukeni Aldekoa[1], Pablo Echevarria[1], Axel Neumann[1], Andriy Ushakov[1]
[1]Helmholtz Zentrum Berlin, Berlin, Germany

P-70
FERMI LLRF High Power S-Band RF Test Stand development for breakdown diagnostics of accelerating structures.
Federico Gelmetti[1], Claudio Serpico[1], Massimo Milloch[1], Mauro Predonzani[1]
[1]Elettra Sincrotrone Trieste Scpa, Trieste, Italy

P-71
LCLS-II gun/buncher and APEX LLRF development
Gang Huang[1], Lawrence Doolittle[1]
[1]Lawrence Berkeley National Laboratory, Berkeley, United States

P-72
Multi-frequency Supported LLRF Front-end
QI Chen[1,2,3], Lawrence Doolittle[2], Gang Huang[2], Yuan He[1], Xianwu Wang[1]
[1]Institute Of Modern Physics, Chinese Academy Of Sciences, LANZHOU, China, [2]Lawrence Berkeley National Laboratory, Berkeley, United States, [3]University of Chinese Academy of Sciences, Beijing, China

P-73
Piezo control for XFEL
Mariusz Grecki[1], for LLRF group
[1]DESY, Hamburg, Germany

P-74
SoC Architectures in LLRF at Fermilab
Brian Chase[1], Ed Cullerton[1], **Joshua Einstein-Curtis**[1], Philip Varghese[1]
[1]Fermilab, Batavia, United States

P-75
SwissFEL C-band downconverter design
Alexander Dietrich[1]
[1]Paul Scherrer Institut, Villigen, Switzerland

P-76
Design and Development of FMC RF Data Converter Modules for the SNS Ring LLRF Control System
Franklin Frye[1]
[1]Ornl-sns, Oak Ridge, United States

P-77
Implementation of a One-Turn Delay Feedback with a Fractional Delay Filter
Lorenz Schmid[1], Philippe Baudrenghien[1], Gregoire Hagmann[1]
[1]Cern, Geneva, Switzerland

P-78
The ESS FPGA Framework and its Application on the ESS LLRF System
Christian Amstutz[1], Maurizio Donna[1], Mehdi Mohammednezhad[3], Anders J Johansson[1,2]
[1]European Spallation Source, Lund, Sweden, [2]Lund University, Lund, Sweden, [3]Sigma Connectivity, Lund, Sweden

P-79
Baseband board set for LCLS-II LLRF
Lawrence Doolittle[1], Gang Huang[1], John Jones[1], Carlos Serrano[1]
[1]LBNL, Berkeley, United States

P-80
LO and CLK generation modules for LLRF system of European XFEL
Mateusz Zukocinski[1], Krzysztof Czuba[1], Matthias Hoffmann[2], Frank Ludwig[2], Uros Mavric[2], Maciej Urbanski[1]
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P-81
The Consideration of RF Reference Phase Stabilization for the SuperKEKB Injector LINAC
Na Liu[1], Takako Miura[1,2], Toshihiro Matsumoto[1,2], Dai Arakawa[2], Hiroaki Katagiri[2], Yoshiharu Yano[2], Shinichiro Michizono[1,2], Feng Qiu[1,2], Sigit Basuki Wibowo[1]
[1]The Graduate University for Advanced Studies (SOKENDAI), Shonan Village, Japan, [2]High Energy Accelerator Research Organization (KEK), 1-1 Oho, Tsukuba, Japan

P-82
Master Oscillator concept for ESS
Anders Svensson[1], Anders J Johansson[2]
[1]European Spallation Source, Lund, Sweden, [2]Lund University, Lund, Sweden

P-83
High Level Applications for SwissFEL LLRF System
Zheqiao Geng[1]
[1]Paul Scherrer Institut, Villigen Psi, Switzerland

P-84
FPGA-Based Cavity Phase Stabilization for Coherent Pulse Stacking
Yilun Xu[1,2], Russell Wilcox[2], John Byrd[2], Lawrence Doolittle[2], Qiang Du[2], Gang Huang[2], Yawei Yang[2], Chuanxiang Tang[1], Wenhui Huang[1]
[1]Tsinghua University, Beijing, China, [2]Lawrence Berkeley National Laboratory, Berkeley, USA

P-85
Soleil digital transverse bunch by bunch feedback system upgrade
Rajesh Sreedharan[1]
[1]Synchrotron Soleil, Gif-sur-yvette, France

P-86
Laser-to-RF Synchronization with Femtosecond Precision
Holger Schlarb[1], Thorsten Lamb[1], Lukasz Butkowski[1], Ewa Felber[1], Matthias Felber[1], Michael Fenner[1], Szymon Jablonski[1], Tomasz Kozak[1], Jost Müller[1], Pawel Predki[1], Cezary Sydlo[1], Mikheil Titberidze[1], Falco Zummack[1]
[1]Desy, Hamburg, Germany

P-87
Detuning and field control of an SRF Photoinjector Cavity for the bERLinPro Energy Recovery Linac
Axel Neumann[1], Andriy Ushakov[1], Pablo Echevarria[1]
[1]Helmholtz Zentrum Berlin, Berlin, Germany

P-88
XFEL RF Synchronization System
Dominik Sikora[1], Krzysztof Czuba[1], Paweł Jatczak[1], Dawid Kołcz[1], Maciej Urbański[1], Martin Killenberg[2], Frank Ludwig[2], Heinrich Pryschelski[2], Holger Schlarb[2], Nadeem Shehzad[2]
[1]Warsaw University of Technology, ISE, Warsaw, Poland, [2]Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany

P-89
Status update on the 1.3 GHz Master Oscillator of the European XFEL
Bartosz Gąsowski[1], Łukasz Zembala[1], Stanisław Hanasz[1], Tomasz Owczarek[1], Krzysztof Czuba[1], Henning-Christof Weddig[2], Holger Schlarb[2], Julien Branlard[2]
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P-90
Cavity Simulator for the European Spallation Source
Maciej Grzegrzółka[1], Igor Rutkowski[1], Krzysztof Czuba[1]
[1]Warsaw University Of Technology, ISE, Warsaw, Polska

P-91
New applications of CERN's Digital LLRF family and results obtained
Maria Elena Angoletta[1]
[1]Cern, Geneva, Switzerland

P-92
The SPS LLRF upgrade project: An update
Gregoire Hagmann[1], Javier Galindo Guarch[1,2], Gerd Kotzian[1], Lorenz Schmid[1], Arthur Spierer[1], Philippe Baudrenghien[1]
[1]Cern, Geneva, Switzerland, [2]UPC, Barcelona, Spain

P-93
LLRF Resonance Control System for LCLS2
Ramakrishna Bachimanchi[1], Brian Chase[2], Joshua Einstein-Curtis [2], Curt Hovater[1], Gang Huang[3]
[1]Jefferson Lab, Newport News, United States, [2]Fermi Lab, Chicago, United States, [3]Berkeley Lab, Berkeley, United States

P-94
Modular Low-Noise Piezoamplifier Driver for SRF Applications
Brian Chase[1], **Joshua Einstein-Curtis**[1], Dan Klepec[1]
[1]Fermilab, Batavia, United States

P-95
Phase Reference Distribution System for European Spallation Source
Mateusz Zukocinski[1], Krzysztof Czuba[1], Michal Kalisiak[1], Tomasz Lesniak[1], Krzysztof Oliwa[1], Radoslaw Papis[1], Dominik Sikora[1], Anders Sunesson[2], Wojciech Wierba[1], Rihua Zeng[2]
[1]Warsaw University of Technology, Institute of Electronic Systems, Warsaw, Poland, [2]European Spallation Source, ERIC, Lund, Sweden

P-96
Design Considerations for the RF Reference distribution System for RISP linac
Kyungtae Seol[1], Hyojae Jang[1], Hoechun Jung[1]
[1]IBS, Daejeon, South Korea

P-97
Low Level Upgrade for the brookhaven 200-MEV H-Linear Accelerator
Freddy Severino[1], Darryl Goldberg[1], Thomas Hayes[1], Vincent Lo Destro[1], Kevin Mernick[1], Geetha Narayan[1], Kevin S. Smith[1], Alexander Zaltsman[1]
[1]Brookhaven National Laboratory, Upton, United States

P-98
LCLS II Phase Reference System
Chengcheng Xu[1], Bo Hong[1], Josef Frisch[1], Steve Smith[1], Lawrence Ruckman[1]
[1]Slac National Accelerator Lab, Menlo Park, United States

P-99
Digital Low Level RF Systems for SESAME light Source
Nasha't Sawai[1], D. Foudeh,[1] E. Huttel[1], A. Kurdi[1] D. Teytelman[2]
[1]Sesame, Allan, Jordan, [2]Dimtel, Inc, San José, United States

P-100
Design and status of a MicroTCA.4 based LLRF system for TARLA
Christian Schmidt[1] , Julien Branlard[1], Łukasz Butkowski[1], Çağıl Gümüş[1], Martin Hierholzer[1], Konrad Przygoda[1], Holger Schlarb[1], Matthias Hoffmann[1], Konrad Przygoda[1], Holger Schlarb[1] Avni Aksoy[2], Michael Kuntzsch[3]
DESY, [1] Hamburg, Germany, [2] TARLA, Ankara, Turkey, [3]HZDR, Dresden, Germany

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The Rohde & Schwarz electronics group offers innovative solutions in all fields of wireless communications as well as in IT security. Founded more than 80 years ago, the independent company has an extensive sales and service network with subsidiaries and representatives in more than 70 countries. On June 30, 2016, Rohde & Schwarz had approximately 10,000 employees. The group achieved a net revenue of approximately EUR 1.92 billion in the 2015/2016 fiscal year (July to June). The company is headquartered in Munich, Germany, and also has strong regional hubs in Asia and the USA.
R&S ® is a registered trademark of Rohde & Schwarz GmbH & Co. KG.

STAND 5

STRUCK INNOVATIVE SYSTEME GMBH
Harksheider Str.102A
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Tel: +49 (0) 40 60 87 305 13
www.struck.de

Struck Innovative Systeme digitizers are used in controls applications in accelerators around the globe. The use of the SIS8300-x MTCA.4 family in FEL LLRF and BPM applications is just one example of more recent installations. We will present the Kintex Ultrascale based SIS8300-KU as the latest extension to the family and upcoming modular developments with sampling speeds up to 3.0 GSPS at a resolution of 14-bit. Data streaming systems with a throughput of up to 8 GByte/s can be implemented in combination with MTCA infrastructure from N.A.T.

STAND 6

TRYO COMMUNICATION SYSTEMS SA.
Pol. Industrial Congost, Parc. 4-S
08530 La Garriga, Barcelona, Spain
Tel: +34 938 605 470
www.tryocomm.com

TRYO Communications is a privately owned company, headquartered in La Garriga (Barcelona, Spain), continuing an industrial tradition of more than 60 years.
TRYO Communications is a company specialised in RF technologies, focused on the design, manufacture and installation of equipment and systems in the areas of Broadcast, Air Traffic Control and Scientific facilities, such as particle accelerators or fusion laboratories. The continuous improvement philosophy has led the Company to consolidate very efficient processes, which allows providing the shortest time-to-market for tailored solutions.

LIST OF SPONSORS

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