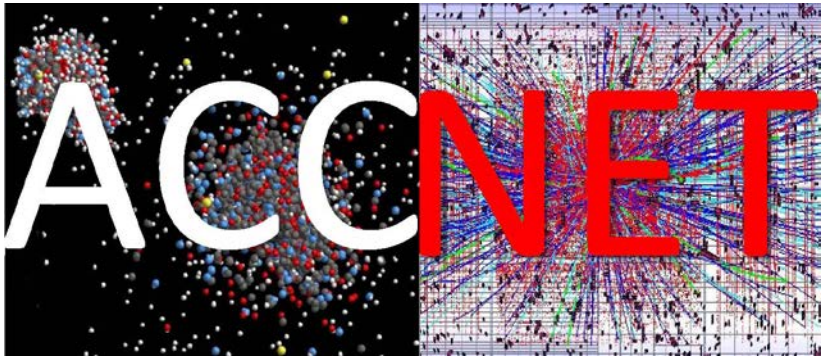

EuCARD WP4 - Accelerator Networks

coordinated by
Ralph Assmann, Jean-Marie De Conto, Mariusz Grecki, Jens Osterhoff, Walter Scandale, Peter Spiller, Ezio Todesco, Arnd Specka, Wolfgang Weingarten (ret.), and Frank Zimmermann

11th EuCARD Steering Committee Meeting
Uppsala & CERN, 6-7 December 2012

ACCNET

Accelerator Science Networks

Coordination & Management

coordinated by Walter Scandale, IN2P3 ; Peter Spiller, GSI ; Frank Zimmermann, CERN

EURO-LUMI

accelerators & colliders performance

coordinated by
Frank Zimmermann &
Ezio Todesco, CERN

RFTECH

sc & nc rf technologies

coordinated by
Jean-Marie de Conto, UJF
Mariusz Grecki, DESY
Wolfgang Weingarten, CERN

EuroNNAc

novel accelerators

coordinated by
Ralph Assmann, CERN
Jens Osterhoff, DESY
Arnd Specka, E.Pol.

recent changes to AccNet coordinators

Henri Videau (Ecole Polytechnique) has retired

Arnd Specka (Ecole Polytechnique) has joined as new co-coordinator for EuroNNAc

AccNet (co-)sponsored events in 2012

- **EuroNNAc2012**, CERN 24 May 2012
- Special RFTech session **MixDes2012**, Warsaw, 24-26 May
- EuCARD/AccNet-CERN/LER-INFN/LNF-INFN-Pisa joint **ECLOUD'12** workshop, Elba, 5-9 June
- IEEE **RT2012**, Berkeley, 11-15 June
- **HOMSC2012** workshop Daresbury, 25-27 June
- **LLRF collaboration meeting** Lodz, 6-8 August
- two **special EuCARD-WP4 sessions at ICAP'12**, Warnemünde, 19-25 August
- 1st & 2nd **EuCARD "LEP3" mini workshops**, 18 Jun+23 Oct
- **HiLumi LHC - LARP** Annual Meeting in Frascati continued AccNet workshops on LHC upgrade (crab cavities, HL-LHC design), now as a real project (*AccNet role as pioneer*!)

RFTech co-sponsored events

HOM Workshop

More · Europe/Berlin · English · Login

Advanced Techniques in LLRF control for XFEL - Collaboration Workshop

6-8 August 2012 *Department of Microelectronics and Computer Science*
Europe/Berlin timezone

Overview
Timetable
Registration
Registration Form
List of registrants

EuCARD ACCNET RFTech

Advanced Techniques in LLRF control for XFEL - Collaboration Workshop provides a chance for people involved in development of hardware and software parts of LLRF control system to present their work and discuss plans for the future. It is focused on LLRF solutions for FLASH and XFEL and will take place at the Technical University of Lodz, Poland August 6 to August 8.

Dates: from 06 August 2012 08:00 to 08 August 2012 18:00
Timezone: Europe/Berlin
Location: *Department of Microelectronics and Computer Science*
ul. Wolczanska 221/223 building B18, 90-924 Łódź, POLAND
Room: Main Auditorium A1/A2
Chairs: Dr. Schlarb, Holger
Dr. Ludwig, Frank
Dr. Grecki, Mariusz
Additional info: **1. Meeting place address**

Technical University of Lodz
Department of Microelectronics and Computer Science
ul. Wolczanska 221/223 building B18, 90-924 Łódź, POLAND
Room: Main Auditorium A1/A2
Main Auditorium A1/A2 is located in the 1st floor of DMCS building

NEW Event Photographs

Welcome

We are pleased to invite you to the International Workshop on Higher-Order-Mode Diagnostics and Suppression in Superconducting Cavities. Beam-excited higher order modes (HOMs), if left unchecked, can appreciably dilute the beam quality, and in the worst case scenario can give rise to a beam break up instability. This workshop brings together researchers studying HOM suppression in superconducting cavities in fields ranging from energy recovery linacs, light sources and linear collider applications. This workshop encompassed issues in both electron and proton linacs TESLA style cavities, third harmonic cavities, and TEM crabbing and other cavity designs will be considered. Sampling these HOMs also provides a means of diagnosing the beam's position, cavity alignment, as well as intra-cell alignment. Beam dynamics considerations drive the damping requirements. Current experiments at FLASH, Cornell

ECLOUD'12, Elba, 5-9 June 2012

- reviewed recent e-cloud observations at LHC, DAFNE, PETRA-III, Cesr-TA, J-PARC,.. & e-cloud predictions for SuperKEKB, SuperB, Project-X, ISIS upgrade, RHIC upgrade, HL-LHC, HE-LHC, ILC,…
- established & strengthened links with space community (ESA, Val Space consortium, ONERA, ICMM, Princeton SPL, EPFL LEMA, …)
- discussed new powerful simulation tools (SYNRAD3D/Cornell, OSMOSEE/ONERA, PyECLOUD/CERN, WARP-POSINST/LBNL, BI-RME-ECLOUD/EPFL, FEST3D/Aurora, …)

62 participants

ECLOUD'12 photos

EuCARD ***workshop proceedings*** to be published shortly
(eds. R. Cimino, G. Rumolo, F. Zimmermann);
in addition PRST-AB special edition ECLOUD'12

more ECLOUD'12 photos

first EuCARD soccer match

ICAP'12 AccNet sessions

Wednesday 22 August

LHC & FAIR (EuCARD-AccNet)

Chair Giovanni Rumolo

09:00-09:25 (invited)
Ralph Assmann, CERN, Switzerland: ***Advanced modeling and measurements of LHC beam halo and collimation***

09:25-09:45
Giuliano Franchetti, GSI, Germany: ***Space charge and electron cloud simulations***

09:45-10:05
Tatiana Rijoff, U. Milano: ***Beam-beam long range compensation studies for the LHC***

10:05-10:30
Giovanni Iadarola, Università degli Studi di Napoli Federico II, Italy: ***Electron cloud simulations with PyECLOUD***

RF & Impedance (EuCARD-AccNet)

Chair: Jean-Marie De Conto

14:00-14:25
Carlo Zannini, EPFL, Switzerland: ***EM simulations in beam coupling impedance studies: some examples of application***

14:25-14:50
Uwe Niedermayer, TU Darmstadt, Germany: ***Kicker modeling***

14:50-15:15
Eirini Koukovini-Platia, EPFL, Switzerland: ***A method of EM characterization of coating materials for beam chambers***

EuroNNAc activities in 2012

EuroNNAc2012 meeting at CERN from May 2-5 2012, with written minutes, decisions, action list and EXCEL table for facilities.

Statement submitted to the European Strategy Preparatory Group (editing team included Allen Caldwell (MPI), Massimo Ferrario (INFN), Jens Osterhoff (DESY), Toshi Tajima (LMU), Henri Videau (ecole polytechnique) and Ralph Assmann (CERN/DESY)) https://indico.cern.ch/contributionListDisplay.py?confId=175067. "***On the Prospect and Vision of Ultra-High Gradient Plasma Accelerators for High Energy Physics***".

Plan to develop visions into more realistic accelerator proposals and funding requests.

Finalized **negotiations on EuroNNAc2 as part of EuCARD** ; EuCARD2 (European Coordination of Accelerator R&D) project funding now known.

AccNet (co-)sponsored events in 2012

- Special RFTech session **MixDes2012**, Warsaw, 24-26 May
- EuCARD/AccNet-CERN/LER-INFN/LNF-INFN-Pisa joint **ECLOUD'12** workshop, Elba, 5-9 June
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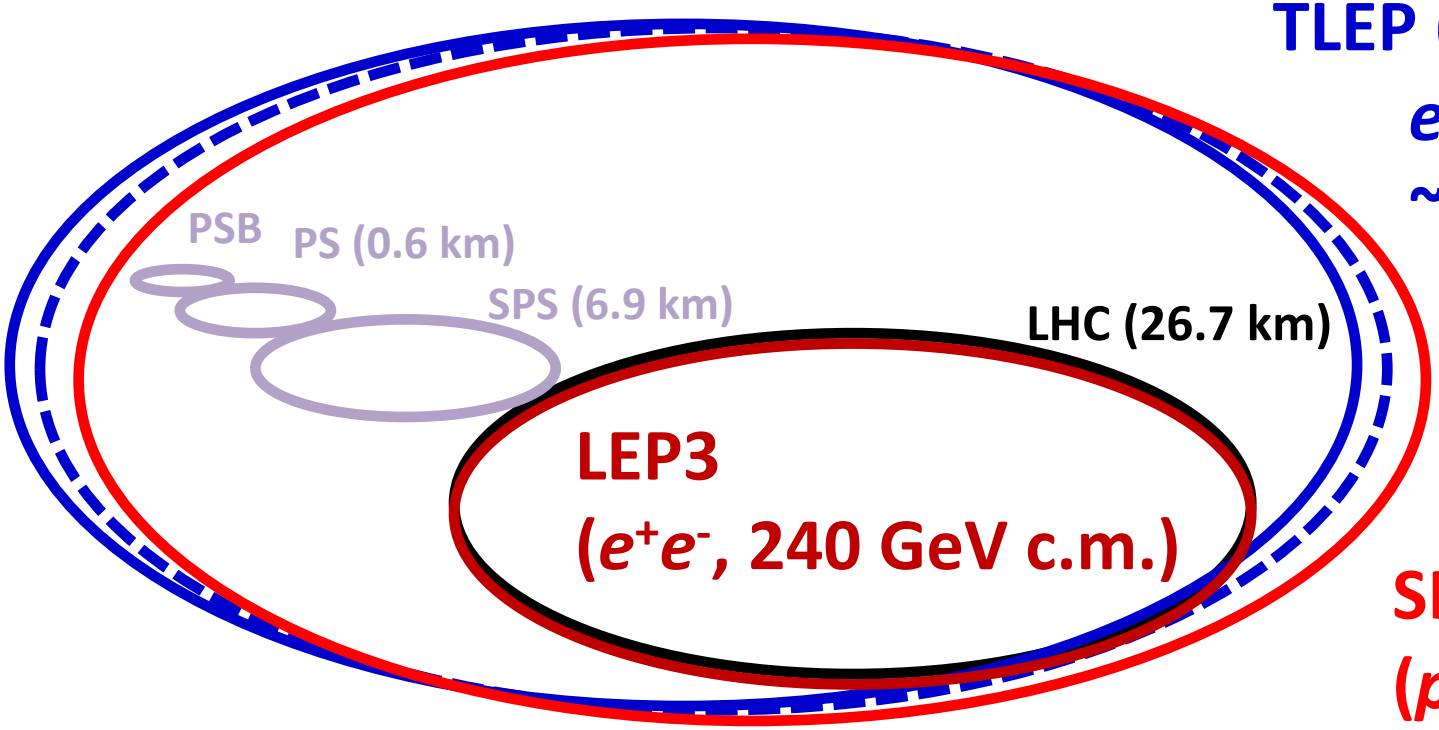
- **HiLumi LHC - LARP** Annual Meeting in Frascati continued AccNet workshops on LHC upgrade (crab cavities, HL-LHC design), now as a real project (*AccNet role as pioneer*!)

→ ***refocusing on future beyond HL-LHC (LEP3/TLEP, (S)HE-LHC…)***

possible long-term strategy



TLEP (80 km, e^+e^-, up to ~350 GeV c.m.)

SHE-LHC (pp, up to 100 TeV c.m.)

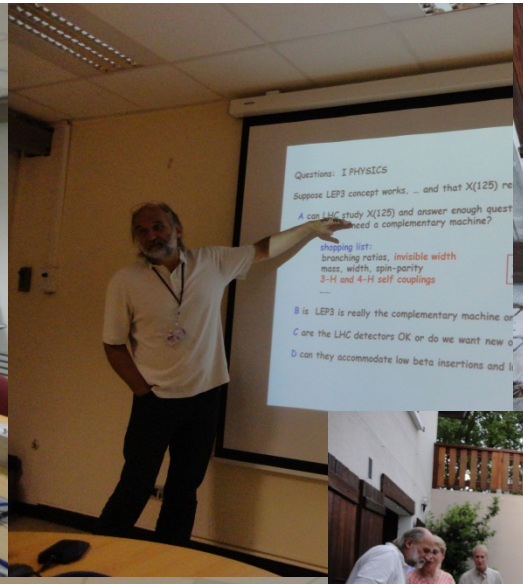
also: $e^{\pm}$ **(200 GeV) –** p **(7 & 50 TeV)** collisions

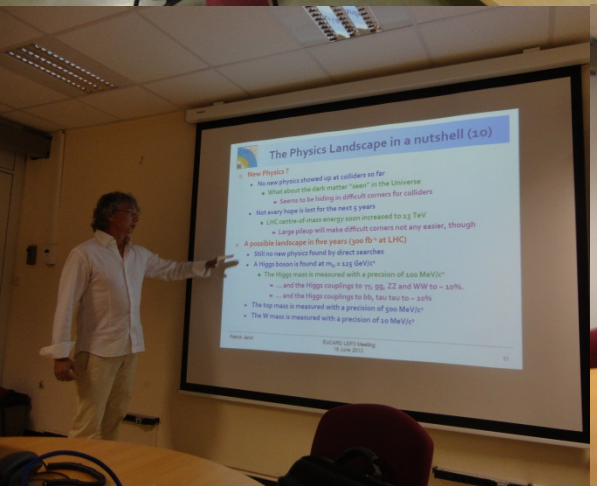
≥50 years of e^+e^-, pp, ep/A physics at highest energies

1st EuCARD LEP3 Day

~40 participants

physics case, beam parameters, beam dynamics (beamstrahlung), hardware (RF, vacuum, magnets), tunnel,…





EuroLumi exchanges & joint studies

- participation of several students & expert speakers (SLAC, BINP) and administrative support for ECLOUD'12
- Valery Telnov (BINP) for 1st LEP3 Day (talk on beamstrahlung effects)
- Uli Wienands (SLAC) for 2nd LEP3 Day (2 talks on SLAC/LBNL optics, parameters, & polarization)
- several participants (2 speakers + 1 session chair) for special EuCARD session at ICAP'12
- Kazuhito Ohmi (KEK) for LHC & LEP3/TLEP beam-beam simulations, Nov 2012
- collaboration with CINVESTAV/Mexican universities (3 students at CERN: LHC e-cloud, crab cavities, Linac4)

RFTech exchanges & joint studies

- LLRF Collaboration meeting in Lodz (6-8.08.2012, 43 participants) *link*
- support for 1 scientist from DESY to visit LASA Milan for testing a piezo lifetime in cryo conditions (2 visits, in total 2 weeks)
- support of 5 PhD students attending RFTech special session at Mixdes 2012
- support for HOMSC12 Workshop Cockcroft I. *link*
- several participants (1 speaker & 1 chair) in ICAP'12
- support of participation in RT2012 *link*, (with several posters advertising RFTech)
- support of visits of 3 scientists from Swierk (Poland) to Helmholtz-Zentrum Berlin (2 weeks) for experiments with superconducting cathode.

WP4 AccNet outreach & dissemination

ECLOUD'12 article in **CERN Courier**, Sept. 2012

Article on EuCARD LEP3 Day in
Accelerating News Magazine, issue 3

presentations and seminars:
TU Darmstadt, SLAC SSI, SLAC50, Oxford,
KEK, CERN colloquium, …

Posters & papers at conferences:
10 contributions to IPAC'12 New Orleans
6 contributions to RT2012, Berkeley
6 contributions to ICAP'12 Warnemünde

AccNet article in *CERN Courier* Sept 2012

ECLOUD12 s[…] on electron […]

A recent workshop reviewed the latest experiences with the phenomenon of electron clouds at the LHC and other accelerators.

Electron clouds – abundantly generated in accelerator vacuum chambers by residual-gas ionization, photoemission and secondary emission – can affect the operation and performance of hadron and lepton accelerators in a variety of ways. They can induce increases in vacuum pressure, beam instabilities, beam losses, emittance growth, reductions in the beam lifetime or additional heat loads on a (cold) chamber wall. They have recently regained some prominence: since autumn 2010, all of these effects have been observed during beam commissioning of the LHC.

Electron clouds were recognized as a potential problem for the LHC in the mid-1990s (*CERN Courier* July/August 1999 p29) and the first workshop to focus on the phenomenon was held at CERN in 2002 (*CERN Courier* July/August 2002 p15). Ten years later, the fifth electron-cloud workshop has taken place, again in Europe. More than 60 physicists and engineers from around the world gathered at La Biodola, Elba, on 5–8 June to discuss the state of the art and review recent electron-cloud experience.

Valuable test beds

Many electron-cloud signatures have been recorded and a great deal of data accumulated, not only at the LHC but also at the CESR Damping Ring Test Accelerator (CesrTA) at Cornell, DAΦNE at Frascati, the Japan Proton Research Complex (J-PARC) and PETRA III at DESY. These machines all serve as valuable test beds for simulations of electron-cloud build-up, instabilities and heat load, as well as for new diagnostics methods. The latter include measurements of synchronous phase-shift and cryoeffects at the LHC, as well as microwave transmission, coded-aperture images and time-resolved shielded pick-ups at CesrTA. The impressive resemblance between simulation and measurement suggests that the existing electron-cloud models correctly describe the phenomenon. The workshop also analysed the means of mitigating electron-cloud effects that are proposed for future projects, such as the High-Luminosity LHC, SuperKEKB in Japan, SuperB in Italy, Project-X in the US, the upgrade of the ISIS machine in the UK and the International Linear Collider (ILC).

An international advisory committee had assembled an […]

[…]it: Vinicio Tullio LNF/INFN.)

[…] and SuperB are less finalized and perhaps more challenging.

ECLOUD12 was organized jointly and co-sponsored by INFN-Frascati, INFN-Pisa, CERN, EuCARD-AccNet (*CERN Courier* November 2009 p16) and the Low Emittance Ring (LER) study at CERN. In addition, the SuperB project provided a workshop pen "Made in Italy". The participants also enjoyed a one-hour football match (another novel feature) between experimental and theoretical electron-cloud experts – the latter clearly outnumbered – as well as post-dinner discussions until well past midnight. The next workshop of the series could be ECLOUD15, which would coincide with the 50th anniversary of the first observation of the electron-cloud phenomenon at a small proton storage-ring in Novosibirsk and its explanation by Gersh Budker.

● For all of the presentations at ECLOUD12, see http://agenda.infn.it/conferenceOtherViews.py?view=standard&confId=4303.

The ECLOUD12 workshop was dedicated to the memory of the late Francesco Ruggiero, former leader of the accelerator physics group at CERN, who launched an important remedial electron-cloud crash programme for the LHC in 1997.

Résumé

ECLOUD12 : en savoir plus sur les nuages d'électrons

Les nuages d'électrons produits dans les enceintes à vide peuvent avoir des effets sur le fonctionnement et la performance des accélérateurs. Ces phénomènes ont été reconnus au milieu des années 1990 comme pouvant présenter un problème pour le LHC, et le premier atelier consacré à ce phénomène a eu lieu au CERN en 2002. Dix ans plus tard, voici le 5e atelier sur les nuages d'électrons. Plus de 60 physiciens et ingénieurs du monde entier se sont réunis à l'île d'Elbe début juin, pour parler de l'état de la technique et évoquer l'expérience acquise récemment en matière de nuages d'électrons au LHC et dans d'autres accélérateurs.

Roberto Cimino, LNF/INFN, and **Frank Zimmermann**, CERN, chairs of ECLOUD12.

AccNet article in *Accelerating NEWS* issue 3

Circulating ideas about a new Higgs factory

Frank Zimmermann (CERN)

Could the LHC tunnel one day house a high-luminosity electron-positron collider? This idea joined others at the LEP3 Day, held at CERN on 18 June 2012.

In 2011, early LHC indications suggested that the Higgs boson might be light, with a mass in the range 115-130 GeV. On Christmas' Eve 2011 the first concrete proposal for a high-luminosity circular electron-positron collider was presented after Alain Blondel of Geneva University realised that an object like this could be studied in the LHC tunnel at about 240-GeV centre-of-mass energy.

This, along with the numerous encouraging reactions to this proposal, led the EuCARD Work Package 4 "AccNet" to organise a "LEP3 Day", which was only a few weeks before the LHC's ATLAS and CMS experiments announced the discovery of a Higgs-like boson with a mass of 125 GeV. About 40 motivated accelerator physicists from Switzerland, Japan, Russia, US and the UK participated in this EuCARD LEP3 Day, including Steve Myers, CERN Director of Accelerators and Technology, the KEK trustee Yasuhiro Okada, and members of CMS and ATLAS. A full report on the LEP3 Day is now available.

Read more >>

Keywords: LEP3, EuCARD, LHC

Accelerating NEWS

Issue 3 – Autumn 2012 - article #5 www.acceleratingnews.eu

EuCARD "LEP3 Day" looks at circular Higgs factories

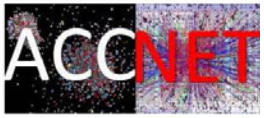
In 2011, early LHC indications suggested that the Higgs boson might be light, with a mass in the range 115-130 GeV. On Christmas' Eve 2011 the first concrete proposal for a high-luminosity circular *electron-positron* collider was presented[1] after Alain Blondel of Geneva University realised that an object like this could be studied in the LHC tunnel at about 240-GeV centre-of-mass energy. This, along with the numerous encouraging reactions to this proposal, led the EuCARD Work Package 4 "AccNet" to organise a "**LEP3 Day**", which was held at CERN on 18 June 2012, only a few weeks before the LHC's ATLAS and CMS experiments announced the discovery of a Higgs-like boson with a mass of 125 GeV. About 40 motivated accelerator physicists from Switzerland, Japan, Russia, US and the UK participated in this EuCARD LEP3 Day, including Steve Myers, CERN Director of Accelerators and Technology, the KEK trustee Yasuhiro Okada, and members of CMS and ATLAS.

Alain Blondel opened by recalling the short history and key elements of a high-luminosity circular collider Higgs factory, "LEP3," in the LHC tunnel. The projected target performance achieved 500 times the luminosity of LEP at 15% higher beam energy while respecting acceptable power consumption limits. This was made possible by three innovations: (1) using a lower-emittance optics (e.g. as for the LHeC project), (2) much stronger focusing at the collision point (albeit not quite as strong as for the SuperB factories), and, in particular, (3) complementing the collider ring running at constant energy with a fast cycling accelerator ring for top-up injection. He explained how this top-up injection is necessary at luminosities at the $10^{34}cm^{-2}s^{-1}$ level because the beam lifetime, due to radiative Bhabha scattering, will be only 15-20 minutes (for comparison at the former LEP2 it was a couple of hours).

AccNet recent talks & literature

Accelerator Science Networks

EuroLumi, EuroNNac and RFTech



Literature and Presentations

Main Objectives | Network Structure | Activity Reports | WP4 Collaboration Workspace | Job Opportunities | Workshops | Literature and Presentations | Links

2012

K. Ohmi, **Beam-Beam Simulations: Dynamical Effects and Beam-Beam Limit for LEP3**, CERN, 4 December 2012

K. Ohmi, **Beam-Beam Synchro-Beta Resonance**, CERN, 4 December 2012

G. Franchetti and F. Zimmermann, **New Approach to Resonance Crossing**, PRL 109, 234102 (2012)

F. Zimmermann, **Future Possibilities for Precise Studies of X125 - Higgs Factories**, CERN Colloquium, 22 November 2012

F. Zimmermann, **SAPPHiRE & LHeC**, ICFA HF2012 workshop, FNAL, 16 November 2012

F. Zimmermann, **LEP3 and TLEP**, ICFA HF2012 workshop, FNAL, 15 November 2012

F. Zimmermann, **Circular Higgs Factories - LEP3, TLEP & Sapphire**, KEK Accelerator Laboratory Seminar, 6 November 2012

F. Zimmermann, **Circular Higgs Factories - LEP3, TLEP & Sapphire**, Invited Seminar, Oxford University, 1 November 2012

E. Koukovini-Platia, G. De Michele, G. Rumolo, C. Zannini, **Electromagnetic Characterization of Materials for the CLIC Damping Rings**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p. 198

U. Niedermayer, O. Boine-Frankenheim, **Numerical Calculation of Beam Coupling Impedances in the Frequency Domain using FIT**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p.193

C. Zannini, G. Rumolo, **EM Simulations in Beam Coupling Impedance Studies: Some Examples of Application**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p. 190

G. Franchetti, F. Zimmermann, **Space Charge and Electron Cloud Simulations**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p. 130

T.L. Rijoff, F. Zimmermann, **Simulating the Wire Compensation of LHC Long-range Beam-beam Effects**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p. 135

G. Iadarola, G. Rumolo, **Electron Cloud Simulations with PyECLOUD**, Proc. ICAP'12 Warnemuende, 19-24 August 2012, p. 138

F. Zimmermann, **The Future of Highest Energy Accelerators**, Invited Talk, SLAC 50th Anniversary, Scientific Symposium, 24 August 2012

Accelerator Science

F. Zimmermann, **LHC - The Machine**, Invited Talk, 40th SLAC Summer Institute, 26 July 2012

T. Rijoff, **Testing Long Range Beam-Beam Compendation for the LHC Luminosity Upgrade**, Master Thesis, University of Milano, July 2012

F. Zimmermann, **Status of the LHC and Future Plans**, Seminar Physics & Technology of Particle Accelerators, TU Darmstadt, 25 June 2012

R. Calaga, L. Ficcadenti, E. Métral, R. Tomás, J. Tückmantel, F. Zimmermann, **Proton-Beam Emittance Growth in SPS Coasts**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 3737

F. Zimmermann, Y. Iwashita, **Using Permanent Magnets to Boost the Dipole Field for the High-Energy LHC**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 3578

C.O. Domínguez, G. Arduini, E. Métral, G. Rumolo, F. Zimmermann, G. Iadarola, **Monitoring the Progress of LHC Electron-Cloud Scrubbing by Benchmarking Simulations and Pressure-Rise Observations**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 3105

G. Franchetti, F. Zimmermann, **The Effect of Non-Zero Closed Orbit on Electron-Cloud Pinch Dynamics**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 3033

F. Zimmermann, M. Koratzinos, A.P. Blondel, M. Zanetti, **LEP3: A High Luminosity e+e− Collider in the LHC Tunnel to Study the Higgs Boson**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 2005

T. Rijoff, R. Steinhagen, F. Zimmermann, **Simulation studies for LHC long-range beam-beam compensators**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 2002

T. Baer, R. Calaga, R. De Maria, S.D. Fartoukh, E. Jensen, R. Tomás, J. Tückmantel, J. Wenninger, B. Yee-Rendon, F. Zimmermann, **Very Fast LHC Crab Cavity Failures and their Mitigation**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 121

F. Zimmermann, O. Bruning, **Parameter Space for the LHC Luminosity Upgrade**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 127

J.L. Abelleira, S. Russenschuck, R. Tomás, F. Zimmermann, C. Milardi, M. Zobov, K. Ohmi, D.N. Shatilov, **Local Chromatic Correction Scheme and Crab-waist Collisions for an Ultra-low β^* at the LHC**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 118

G.H.I. Maury Cuna, G. Iadarola, G. Rumolo, F. Zimmermann, **Simulation of electron-cloud heat load for the cold arcs of the large hadron collider**, Proc. IPAC'12 New Orleans, 20-25 May 2012, p. 115

M. Grecki, **Joint Highlight Talk of WPs 4&10: Overview of the LLRF Developments for FLASH**, 3rd EuCARD Annual Meeting, WUT, Warsaw, Poland, 27 April 2012

W. Scandale, **UA9 Status Report**, 25 April 2012, EuCARD-REP-2012-002

S. Fartoukh, **Highlight Talk of WP4:The Achromatic Telescopic Squeezing scheme: first validations with beam in the LHC and very low beta* optics for HL-LHC**, 3rd EuCARD Annual Meeting, WUT, Warsaw, Poland, 25 April 2012

G. Burt, **Joint Highlight Talk of WPs 4&10: Compact Crab Cavities for LHC**, 3rd EuCARD Annual Meeting, WUT, Warsaw, Poland, 25 April 2012

F. Zimmermann, **Report of WP4: AccNet**, 3rd EuCARD Annual Meeting, WUT, Warsaw, Poland, 25 April 2012

K. Ohmi, R. Tomas, Y. Funakoshi, R. Calaga, T. Ieiri, Y. Morita, K. Nakanishi, K. Oide, Y. Ohnishi, Y. Sun, M. Tobiyama, F. Zimmermann, **Response of colliding beam-beam system to harmonic excitation due to crab-cavity rf phase modulation**, PRST-AB 14, 111003, EuCARD-Pub-2012-002

http://accnet.web.cern.ch/accnet/Literature/index.php[06/12/2012 06:25:51]

recent publication

PRL **109,** 234102 (2012) PHYSICAL REVIEW LETTERS week ending 7 DECEMBER 2012

New Approach to Resonance Crossing

G. Franchetti[1] and F. Zimmermann[2]
[1]*GSI Darmstadt, Planckstrasse 1, 64291 Darmstadt, Germany*
[2]*CERN CH-1211, Geneva 23, Switzerland*
(Received 10 January 2012; published 4 December 2012)

Time-varying nonlinear oscillatory systems produce phenomena of resonance crossing and trapping of particles in resonance islands. Traditionally, such processes have been analyzed in terms of adiabatic conditions. Considering, as an example, a simplified one-dimensional model describing the "electron-cloud pinch" during a bunch passage in a particle accelerator, here we present an approach to resonance trapping which does not require any adiabatic condition. Instead we introduce the concept of the attraction point and investigate invariance and scaling properties of motion close to the attraction point, considering a single resonance crossing.

DOI: 10.1103/PhysRevLett.109.234102 PACS numbers: 41.75.−i, 05.45.−a, 29.27.Bd

continuous CERN-GSI collaboration thanks to CARE and EuCARD (started at CARE-HHH-2004 workshop)

recent Master thesis

UNIVERSITÀ DEGLI STUDI DI MILANO
FACOLTÀ DI SCIENZE MATEMATICHE,
FISICHE E NATURALI

Corso di laurea in Fisica

TESTING LONG RANGE BEAM-BEAM COMPENSATION FOR THE LHC LUMINOSITY UPGRADE

Relatore Interno : Prof. Sergio Caracciolo
Relatore Esterno : Prof. Frank Zimmermann

Tesi di laurea di
Tatiana Libera RIJOFF
Matr. 721003
PACS: 13.60.-r

Anno Accademico 2011-12

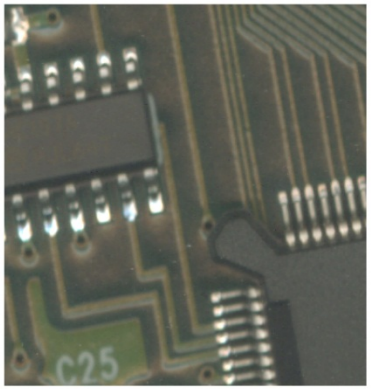
MixDes2012 proceedings

Proceedings of the 19th International Conference

MIXED DESIGN

MIXED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS

MIXDES 2012



Warsaw, Poland
24 - 26 May, 2012

Organised by:

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Technical University of Łódź, Poland
Institute of Microelectronics and Optoelectronics
Warsaw University of Technology, Poland
Faculty of Electronics
Military University of Technology, Poland

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and Section of Signals, Electronic Circuits and Systems
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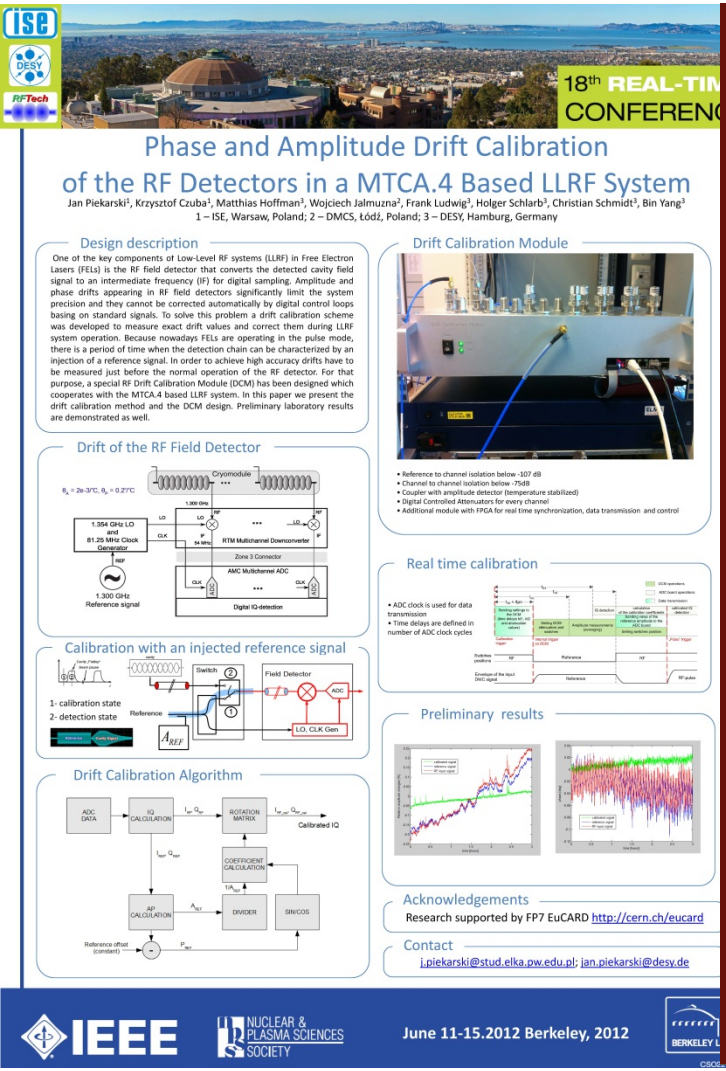
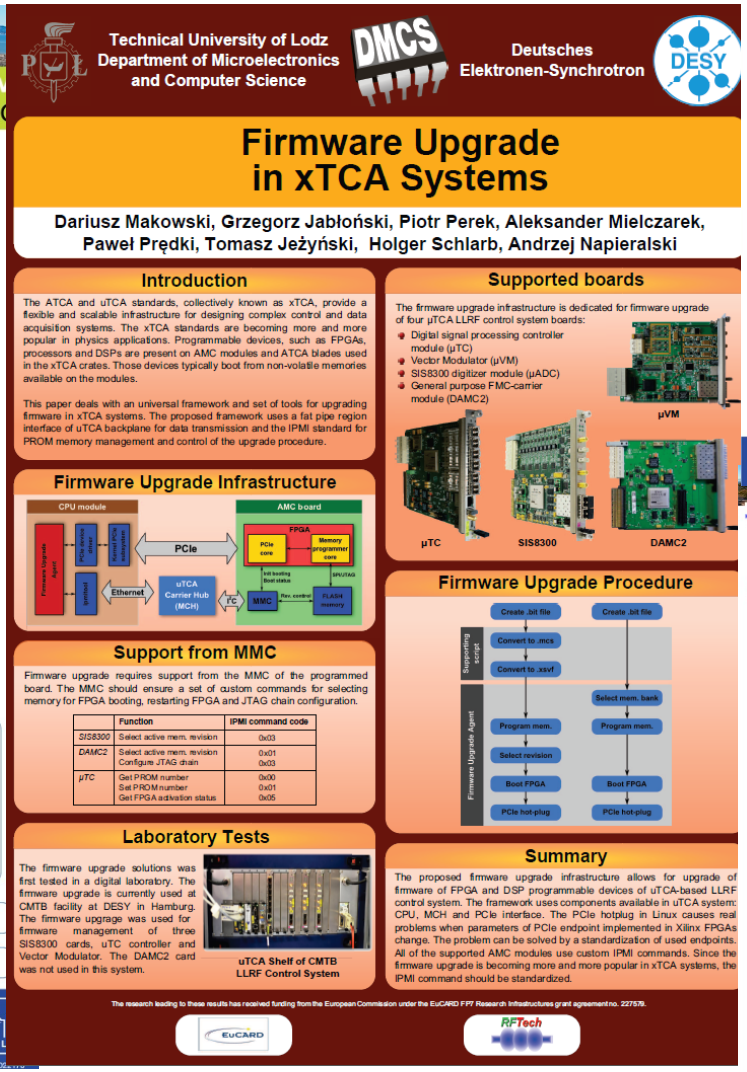
The Compact Modelling Network

some *RT2012* RFTech posters





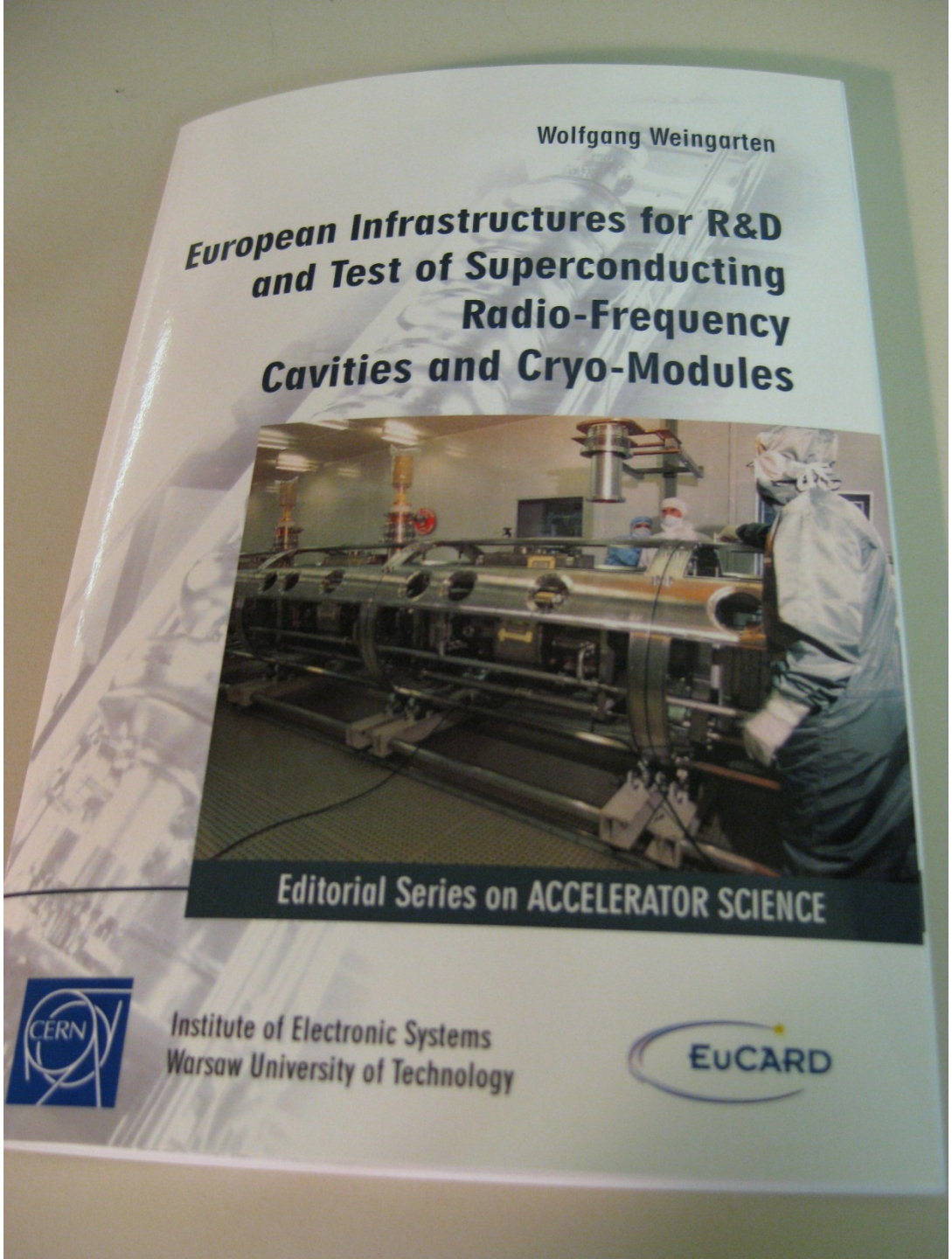
AccNet Deliverable D4.3.2

–

“Strategy/result for SRF test infrastructures”

–

published as EuCARD monograph



AccNet deliverables

Deliverables of tasks	Description/title	Nature	Delivery month	Status
4.1.1	Continually updated AccNet web site	O	M2	DONE, OK
4.1.2	AccNet Strategy for future proton & electron facilities in Europe	R	M48	on track
4.2.1	Continually updated EuroLumi web site	O	M2	DONE, OK
4.2.2	EuroLumi Strategy and issues for LHC IR, LHC injector and beam-parameter upgrade path(s), with comment on longer-term prospects, and for FAIR	R	M48	on track
4.3.1	Continually updated RFTECH web site	O	M2	DONE, OK
4.3.2	Strategy/result for SRF test infrastructures	R	M24	DONE, OK
4.3.3	RFTECH strategy/result for cavity design, LLRF & HPRF systems and design integration, and costing tools	R	M48	on track
4.4.1	Organization of founding workshop gathering the PWA community	O	M27	DONE, OK
4.4.2	Preparation of a proposal for a EC co-funded network in the EuCARD2 proposal	R	M33	DONE, OK

completed AccNet deliverables

D4.1.1 –Continually updated **AccNet web site** http://cern.ch/accnet/)
D4.2.1 – A continually updated **EuroLumi web site** (http://cern.ch/accnet/Tasks/Eurolumi/)
D4.3.1 – A continually updated **RFTech web site** (http://cernc.ch/accnet/Tasks/Rftech/)
D4.3.2 – **Strategy/result for SRF test infrastructures**: Complete
D4.4.1 – Organization of **founding workshop gathering the PWA community**: Completed & report submitted
D4.4.2 – Preparation of a **proposal for a EC co-funded network** in the EuCARD2 proposal: Completed & report submitted

The AccNet web sites are documented in a **report** https://edms.cern.ch/file/1001866/4/EuCARD-Del-D4.1.1-D4.2.1-D4.3.1-1001866-v3.0.pdf
The completed deliverables are available from the link http://cern.ch/EuCARD/about/results/deliverables/ .

AccNet milestones

M.4.1.4

– 4th **general AccNet Steering meeting** during the 3rd EuCARD Annual meeting at Warsaw

M4.2.4:

– Instead of a general annual EuroLumi workshop, **3 topical mini-workshops** have been organized and supported during the fourth year: **ECLOUD12, LEP3 Days 1 & 2**

– **next/final major EuroLumi workshop SpaceCharge 2013 in April 2013**

M4.3.3:

– 4rd annual **RFTECH workshop planned in Grenoble for March 2013**

M4.4.4

– **2012 EuroNNAc workshop**

planned AccNet events in 2013

- co-sponsoring of HFM WAMSDO January 2013? (*under discussion*)
- **third EuCARD "LEP3 Day"** 10 January
- RFTech co-sponsored **uTCA Workshop**
- RFTech co-sponsored **LLRF Collaboration Workshop** in Swierk (Poland) - 25-27.02.2013
- AccNet **"SHE-LHC Day",** 21 February, jointly with US Snowmass subgroup, CERN
- **final RFTech annual workshop**, March Grenoble
- **Joint EuCARD/AccNet-ICFA-HICforFAIR "Space Charge 2013"** workshop
- European Advanced Accelerator Concepts workshop (EAAC2013), 2-8 June 2013, Elba, Italy (*EuroNNAc event?)*; MixDes2013 Gdynia

→input final EuroLumi strategy ***→input final RFTech strategy***

SC 2013 workshop poster

SPACE CHARGE 2013

CERN, April 15-20, 2013

Chair: G. Franchetti, F. Schmidt

Workshop Secretary: D. Rivoiron

International Advisory Committee

Y. Alexahin	FNAL
O. Boine-Frankenheim	GSI
I. Hofmann	Jena University
J. Holmes	SNS
S. Machida	RAL
E. Metral	CERN
K. Ohmi	KEK
F. Zimmermann	CERN

TOPICS

- Modeling of machines: lattice including non-linearities and errors.
- Modeling space charge effects.
- Benchmarking space charge codes both self-consistent and frozen model.
- Benchmarking codes with experiments.
- State of the art techniques to understand machines with regards to space charge combined with nonlinearities.

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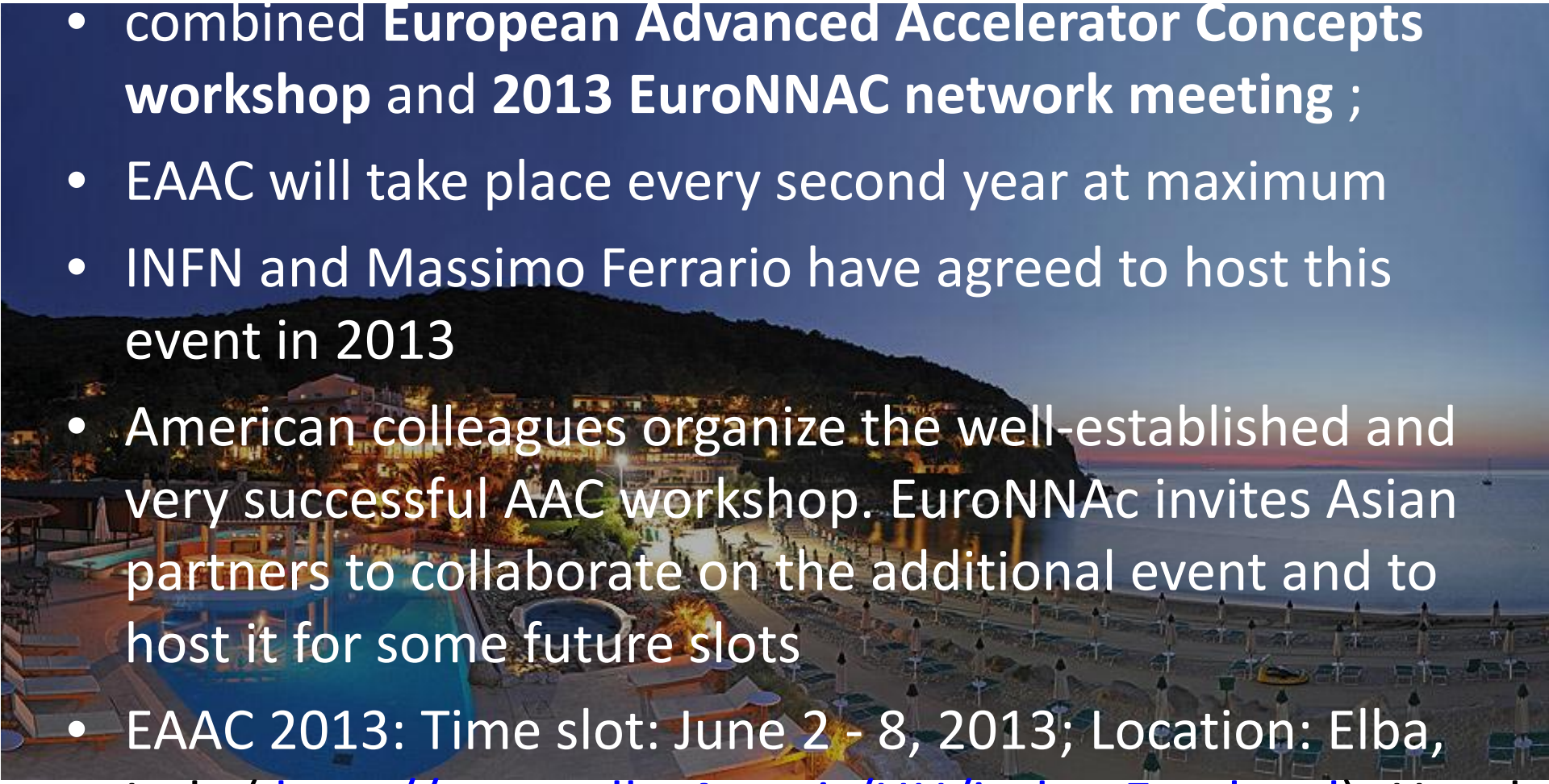
ICFA

HIC for FAIR
Helmholtz International Center

www.cern.ch/aaa/bbb/ccc

EEAC2013 & EuroNNAc2013



- combined **European Advanced Accelerator Concepts workshop** and **2013 EuroNNAC network meeting** ;
- EAAC will take place every second year at maximum
- INFN and Massimo Ferrario have agreed to host this event in 2013
- American colleagues organize the well-established and very successful AAC workshop. EuroNNAc invites Asian partners to collaborate on the additional event and to host it for some future slots
- EAAC 2013: Time slot: June 2 - 8, 2013; Location: Elba, Italy (http://www.elba4star.it/HH/index-Eng.html); Hotel capability: 200 people

proposed AccNet highlights talks at EuCARD 2013

feasibility study of an 80-km tunnel
John Osborne (CERN)

European HEP-accelerator strategy
Roy Aleksan (CEA)

light-source lessons for Higgs factories
Lenny Rivkin (PSI)

AccNet summary

EuroLumi, RFTech & EuroNNAc extremely active; they help launch & support new initiatives

many activities previously launched or promoted by EuCARD-AccNet have become real projects, EuroLumi is refocusing effort on (S)HE-LHC & TLEP

strong dissemination efforts

strategy for deliverables to be defined:
1, 2 or 3 booklets (EuroLumi, RFTech, AccNet)? EuroNNAc?