RF programme Review for the ESGARD Roadmap to EUCARD2

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R&D Themes

#	*type*	*title*	*topic*	*Thematic coordinators*	*EU [M€]*	*EU [%]*
1	MGT	Management		ESGARD	.7	7%
2	NA	Communication			.15	1.5%
3	NA	EuroLumi2	Performance of hadron colliders	**F. Zimmermann*/CERN** + deputy	.4	20%
4	NA	LowERing	Low emittance rings collaboration network	**S. Guiducci/INFN** **Y. Papaphilippou*/CERN**	.4	
5	NA	EuroNNAc2	Laser and plasma electron acceleration	**R. Assmann*/CERN** + EuRONNAC deputies	.4	
6	NA	EnEfficient	Sustainable and energy efficient technologies: RF,…	**Mike Seidel/PSI*** ESS?	.4	
7	NA	AccApplic	Applications of accelerators to industry and medicine	**R. Edgecock*/STFC** + deputy	.4	
8	TA	Open access facilities	MICE, HiradMat, MagNet, CryoCube	t.b.d. later	1.0	10%
9	JRA	MagCol	Magnets and protection (collimation)	**L. Bottura/CERN or L. Rossi*/CERN**	2.5	50%
10	JRA	RF	Nc and sc RF technologies	**P. McIntosh/STFC* + W-D Mueller/DESY S. Chel/CEA as**	2.5	
11	JRA	ANAC2	Assessment of advanced concepts	**R. Assmann*/CERN** + deputy	1.15	11.5%
					10.0	100

Coordinator(s) Task

- Define a prioritized list of Networking and/or R&D activities within the thematic domains to be conducted within the next European Integrating Activity project on Accelerator Sciences to be submitted end 2011.
- Activities should come as natural follow up to CARE/EuCARD projects with emphasis on the benefits to the society, whilst complementing the TIARA preparatory phase.
- For each NA or JRA task, the partners shall provide balancing funds that at least matches the EU funding. If accepted with a budget cut (typically 20% to 30%), the balancing funds are expected to be maintained, reducing the negative impact of the EC funding cut.

Timescales

When	*Who*	*What*
30/09/2010	EuCARD PC	Collect proposals of R&D themes from EuCARD members
15/11/2010	Roy + EuCARD SC	Discuss these and finalize
14/01/2011	ESGARD	Select themes for NA's, TA's and JRA's. Produce version -1 of EuCARD2 to be used as guidelines
31/1/2011	Roy + Jpk	Identify theme coordinators & get agreement and send mandate and term of reference to theme coordinators
29/4/2011	Jpk	Collect proposals of theme coordinators and produce version 0 of EuCARD2
10/5/2011	ESGARD	Discuss and amend version 0
24/6/2011	Jpk	Collect version 1 of theme coordinators and produce version 1 of EuCARD2
8/7/2011	ESGARD	Comments on version 1 and nomination of General Coordinator

Preliminary Proposals

Proposal		Lead
NC	SC	
1) Alternative designs for CLIC with high gradient and suppression of beam-induced wakefields. 2) Fundamental characteristics of RF break-down.	1) HOM monitors 2) Thin film technology	R Jones (UMAN)
New materials, new fabrication and preparation techniques for CLIC 12 GHz structures, to reduce electromigration, field emission, fabrication cost and testing.	1) Progress in high gradient and high power superconducting cavities for **proton linacs**: qualification of the 700 MHz cavity in CryHoLab, e.g. EuCARD beta=1 cavity with improved couplers. 2) Multilayer SC cavities for high gradient (ILC)	O Napoly (CEA)
1) High gradient X-band RF 2) High-gradient C-band RF 3) RF pulse compression techniques 4) Low level control of phase and amplitude in pulsed RF systems 5) Development of solid state RF amplifiers		T Garvey (PSI)
	1) Low frequency (201 MHz) normal and Nb on Cu RF: technology development 2) Muon linac/RLA cryomodule development/prototype/test 3) RF development, including RF in magnetic field (Nu facilities), with STFC, CERN, UNIGE,…	K Long (Imperial)
	Optimization of LLRF control:beam feedbacks,- pushing the control system performance by noise reduction,- optimization of frequency distribution,- optimization of the SC cavity performance by Lorenz Force Detuning and microphonics compensation	M Grecki (DESY)
Development of CLIC crab cavity solution and high power verification.	Development of LHC crab cavity cryomodule solution and high power gradient test verification.	G Burt (ULAN)
	(1) Set-up of a test-stand for the characterization of SRF samples at high resolution in surface resistance. (2) Production/characterization of superconducting thin films. (3) Microphonics compensation (4) Feasibility study on the diamond amplifier cathode (5) Development of a SC cathode or other thin film, high QE material which can be directly applied to the SRF cavity surface	O Kugeler (HZB)
A) CTF3+	B) Preparation of Nb3Sn thin films and qualification	A) S Doebert (CERN) B) W Weingarten (CERN)

Today's Programme

Thursday 21 April 2011

13:00 - 13:15	Overview and Review Objectives *15'*	Speakers: Peter McIntosh (STFC), Wolf-Dietrich Moeller (DESY), Stéphane Chel (CEA-Saclay)
13:15 - 13:45	HZB Proposals *30'*	Speaker: Oliver Kugeler (Helmholtz-Zentrum-Berlin) Material: **Slides**
13:45 - 14:15	Cockcroft Institute Proposals *30'*	Speakers: Dr. Roger Jones (University of Manchester), Dr. Graeme Burt (Cockcroft Institute, Lancaster University) Material: **Slides**
14:15 - 14:45	CEA Proposals *30'*	Speaker: Stéphane Chel (CEA-Saclay)
14:45 - 15:15	PSI Proposals *30'*	Speaker: Terry Garvey (PSI)
15:15 - 15:30	Coffee Break	
15:30 - 16:00	CERN Proposals *30'*	Speaker: Steffen Doebert (CERN)
16:00 - 16:30	DESY Proposals *30'*	Speaker: Mariusz Grecki (DESY)
16:30 - 17:00	IDS-NF Proposals *30'*	Speaker: Prof. Kenneth Long (Imperial College London)
17:00 - 17:30	Synergies and Conclusions *30'*	Speakers: Peter McIntosh (STFC), Stéphane Chel (CEA-Saclay), Wolf-Dietrich Moeller (DESY)

Review Aims

- Compile a list of RF activities for EUCARD2.
- Identifying how proposals are extending existing EUCARD or other framework activities.
- How will existing facilities/infrastructures be enhanced.
- Identify collaboration networks.
- Provide an estimate for resource requirements.
- Identify project synergies and amalgamation opportunities to strengthen collaborations.