Update of proposed Joint Research Activity at DESY in Frame of FP7

Status December 2006**.**

General Remark

R&D in JRA 1 improves and / or uses existing facilities at DESY and partners:

1. TTF-II / FLASH
2. Cryomodule Test Bed (CMTB).
3. **Coupler processing IN2P3 / DESY**

Achievements can be later implemented in **ILC**, the European XFEL and other FEL facilities in Europe and World-wide

Summary of SRF WPs proposed at DESY

	Work package (WP)	Responsible person at DESY	Implementation/ Future Implementation
1	Superconducting RF gun	J. Sekutowicz	FLASH/XFEL/FELs
2	CW operating transmitter	J. Sekutowicz	CMTB/XFEL/FELs
3	LLRF controls	S. Simrock	**ILC**/FLASH/XFEL/FELs
4	Timing & synchronization for SC FEL	H. Schlarb	**ILC**/FLASH/XFEL/FELs
5	Large grain / single crystal Nb resonators	W. Singer	**ILC**/CMTB/FLASH/XFEL/FELs
6	Improvement of the 3.9 GHz higher harmonic system	M. Huening	FLASH/SC FEL
7	"LOLA" at 3 GHz-Longitudinal bunch phase-space measurements	M. Huening	FLASH/XFEL/FELs
8	HOM beam monitors	N. Baboi	FLASH/XFEL/FELs
9	**Fundamental R&D**	**D. Proch**	**ANY**

Summary of SRF WPs proposed at DESY

	Work package (WP)	Collaborating Countries	Collaborating Institutions
1	Superconducting RF gun	Germany, Italy, Poland, USA	DESY, INFN, INS, JLab, BNL, SLAC
2	CW operating transmitter	Germany, USA	DESY, FuG, CPI
3	LLRF controls	Germany, Poland, Italy, France; Switzerland	DESY, IPNO Orsay, INFN Padova, PSI, ISE, IN2P3, DMCS
4	Timing & synchronization for SC FEL	Germany, UK, Turkey	DESY, Daresbury, Bilkent
5	Large grain / single crystal Nb resonators	Germany, USA	DESY, JLab, OSU, CUT, IBF, Wuppertal Uni.
6	Improvement of the 3.9 GHz higher harmonic system	Germany, USA	DESY, FNAL
7	"LOLA" at 3 GHz-Longitudinal bunch phase-space measurements	Germany, USA	DESY, SLAC, Univ. Darmstadt
8	HOM beam monitors	Germany, France, UK, USA, Japan	DESY, SLAC, FNAL, CEA, KEK…
9	**Fundamental SC R&D**	**Germany, Italy, Polen, NN**	**DESY, INFN Roma2, IPJ, INFN Legnaro, Wuppertal**

Costs and FTEs

Summary of SRF WPs proposed at DESY, cont

	Work package (WP)	**FTEs over whole FP7 period**	**Estimated Total Costs [k€]** (FTEs not included)
1	Superconducting RF gun	2	710
2	CW operating transmitter	2	350 (IOT) + 350 (Power supply) +100 (Preamp.)
3	LLRF controls	58 (4 years period)	2590
4	Timing & synchronization for SC FEL	20	2200
5	Large grain / single crystal Nb resonators	Not defined yet	500
6	Improvement of the 3.9 GHz higher harmonic system	6	1360
7	"LOLA" at 3 GHz-Longitudinal bunch phase-space measurements	6	210
8	HOM beam monitors	6 (3 years)	1620
	Total (Preliminary Status, October 2006)	100 x 70k€ 7000 k€	9990 **+ fundamental R&D**

Transnational Access

- Infrastructures
  - **TTF / FLASH: So far the only SC test-bed with beam**
  - Cryomodule Test Bench (CMTB)
  - Coupler Test Area (IN2P3 / DESY)
  - CRYOLAB (Saclay / Orsay)
  - HOBYCAT (BESSY)
  - PITZ (Zeuthen)
  - LLRF laboratories at DESY, WUT, Lodz
  - Thin film laboratories at IPJ, INFN-Roma 2, INFN Legnaro

Comments

- Present Proposals are preliminary
  - will be revised / changed / supplemented according to progress until end of 2008
  - Need to be coordinated with FEL community
- Basic SC R&D needs support in FP7 (e.g. thin film, new materials, FE studies)
  - Fundamental SC R&D is essential to keep European leadership in long term
  - Financial support by laboratories is only weak, mainly project oriented
  - Present support only by CARE!!

Comments, cont.

- SC R&D in CARE / JRA1 is very successful
  - Essential financial support for our Polish partners
- We have a fruitful exchange of knowledge
- We have a lively partnership
- **Let's maintain and continue this active collaboration in FP7**