PROPOSALS FOR HIGH INTENSITY – HIGH ENERGY PROTON BEAMS

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OUTLINE

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Purpose & Context

Purpose:

- **To foster joint European efforts in the preparation for the upgrade of major European accelerator facilities:**
  - **CERN: LHC luminosity upgrad facility**
  - **GSI: FAIR project**
  - **[ISIS (RAL) upgrades ? PSI up**
- **… and in the interest of fut E (Future European ν facility? EURISOL? ES …)**

Initial requests: 58.5 MEuros !

Context:

- **Based on the proposals submitted to ESGARD in 2006 and assembled in a 45 MEuros IA presented at CARE06 (Frascati – Nov. 2006)**
- **Taking into account:**
  - **the approval by Brussels of the CNI for SLHC and of the DS for neutrinos,**
  - **the progress in the definition of the most promising options for LHC,**
  - **the instructions of the laboratory directors:**
    - **Total budget for JRAs counting 70 kEuros/man.year: 14.5 MEuros**
    - **4 years duration**
- **Not counting indirect costs…**

Content (1/3): Networks

- LHC luminosity upgrade
- GSI (FAIR)

Name	Type	Description	Cost (MEuros)	EU funding (MEuros)
EURO-LUMI ...	Network	LHC Luminosity upgrade	0.2	0.2
« MEGLIO » ...	Network	Towards a neutrino facility in Europe	0.3	0.3

- Upgrade of CERN ν facility
- Future European ν facility

Content (2/3): Joint Research Activities

70 kEuros/man.year

- LHC luminosity upgrade
- ν facility

- Application to accelerators (LHC upgrade…)
- Industrial Applications

Name		Description	Cost (MEuros)	EU funding (MEuros)
HFM …	JRA	High Field Magnets for LHC upgrades	6.2	1.86
HTS_SL …	JRA	HT superconducting link	0.8	0.24
ColMat …	JRA	Collimators and Materials for High Power Accelerators	6	1.8
SCPL …	JRA	Superconducting cavities and Cryomodule for a Pulsed pro[illegible] linac	1.5	0.45

- LHC luminosity upgrade
- ν facility
- EURISOL…
- ESS ?

- LHC luminosity upgrade
- GSI (FAIR)
- High power accelerators (e.g. ν facility)
- Industrial Applications

Content (3/3): Transnational Access

- LHC luminosity upgrade
- GSI (FAIR)
- ITER

Name	Type	Description	Cost (MEuros)	EU funding (MEuros)
CryoMagNet ...	TA	Characterization of supraconductors and magnets	0.25	0.25
HiRadMat ...	TA	Test of materials under extreme beam induced shock	0.25	0.25

- LHC luminosity upgrade
- ν facility

Partners (20/33)

	Country	EURO - Lumi	ν	HFM	ColMat	SCPL	HTS-L	CryoMagNet	HiRadMat
Austrian Research Center	Austria	X			X				
Louvain la Neuve	Belgium		X						
Uni. Sofia	Bulgary		X						
CERN	CH	X	X	X	X	X	X	X	X
EPFL	CH	X			X				
PSI	CH	X	X		?				
Uni. Geneva etc.	CH	X	X	?					
ITER	EU	X						X	
CEA (Saclay)	France	X	X	X		X		X	
IN2P3 (Orsay etc.)	France		X			X			
DESY	Germany	X					X		
FZ Karlsruhe	Germany	X		?					
GSI	Germany	X	?		X			X	
KFZ Juelich	Germany		?			?			
MPI (Heidelberg) etc.	Germany		X						
TU Berlin	Germany	X		?					
TU Darmstadt	Germany	X							
INFN (Genova, Milano etc.)	Italy	X	X	X	X	?		X	
Uni. Torino	Italy	X			X				
Uni. Milano	Italy	X			X				

Partners (33/33)

	Country	EURO -Lumi	ν	HFM	ColMat	SCPL	HTS-L	CryoMagNet	HiRadMat
Uni. Bologna	Italy	X							
Uni. Sannio Benvento	Italy	X						X	
Uni. of Malta	Malta	X’							
TEU (Twente)	Netherland	X		X					
Uni. Cracow	Poland	X	?						
WUT	Poland	X		?					
IFIC (Valencia) etc.	Spain		X						
SISC CIEMAT	Spain	X		?					
Uni. Alicante	Spain	X			X				
Cockroft Institute	UK	X				?			
John Adams Institute	UK	X			X				
STFC (RAL, IC etc.)	UK	X	X	?		X			
Uni. Southampton	UK						X		

Industrial Partners (6)

	Country	EURO -Lumi	ν	HFM	ColMat	SCPL	HTS-L	CryoMagNet	HiRadMat
EHTS	Germany (industry)						X		
Plansee	Germany (industry)	X			?				
Cesi	Italy (industry)						X		
Columbus	Italy (industry)						X	X	
Edison	Italy (industry)						X		
Theva	Germany (industry)						?		

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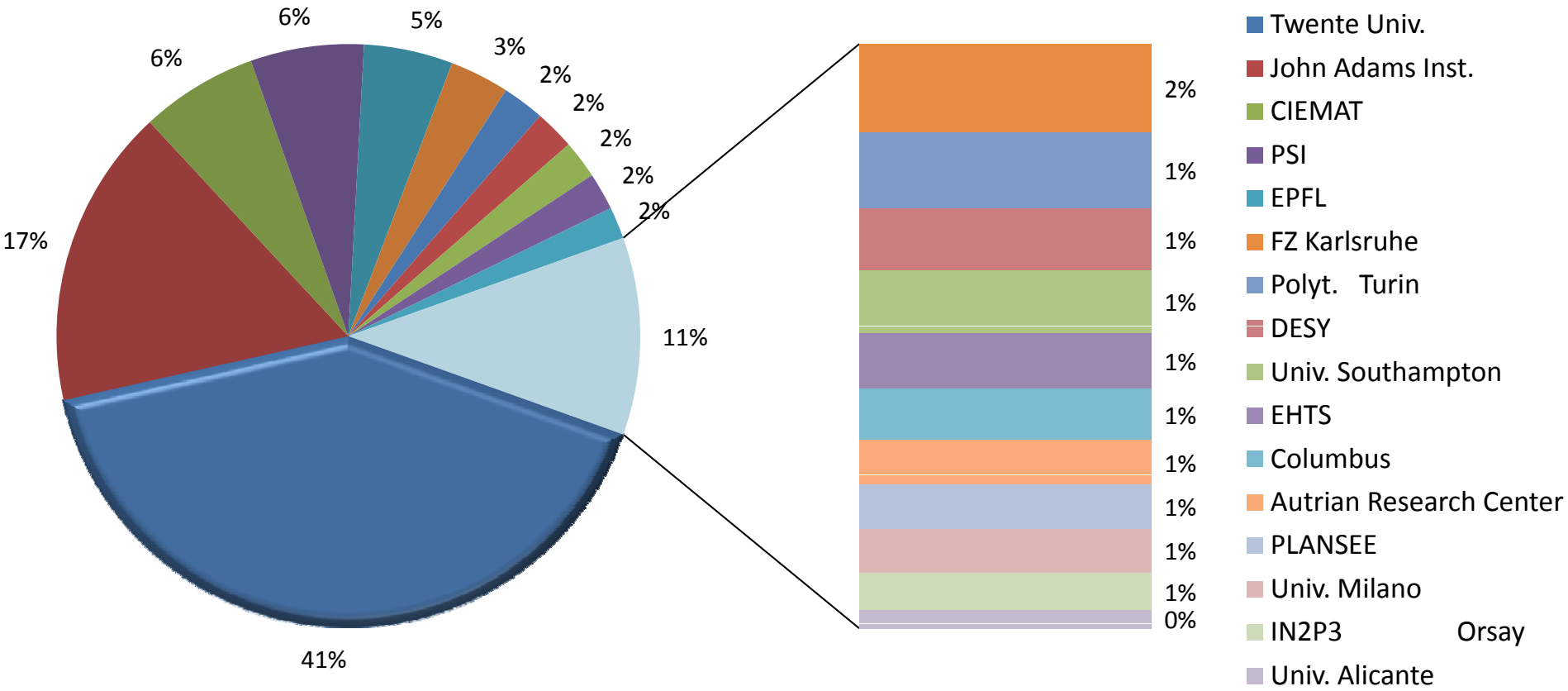
Partners outside Europe (8)

	Country	EURO -Lumi	ν	HFM	ColMat	SCPL	HTS-L	CryoMagNet	HiRadMat
BINP Novosibirsk	Russia						?		
IHEP Protvino	Russia	X			X				
JINR Dubna	Russia	X			X				
Kurchatov Research Centre	Russia	X			X				
BNL	USA	X			X				
FNAL	USA	X			X				
LBNL	USA	X		X					
SLAC	USA	X			X				X
KEK	Japan	X		X					
US-LARP	USA	X			X				X
Texas A&M	USA	?							

Budget distribution (JRAs only)

	CERN	CEA-Saclay	STFC RAL & IC	GSI	INFN	CNRS Grenoble	Twente Univ.	John Adams Inst.	CIEMAT	PSI	EPFL	OTHER LABS	
TOTAL (kEuros)	5948	2410	940	910	715	477	338	320	305	300	255	1585	14501