Organising the Collaboration

Work Packages and their interfaces
Structure of the collaboration
ERC application
SPSC → MoU

Work Packages

Responsibility	Deliverables	Institutes
Fast e^+	Electron linac, primary target	**NCBJ**, IRFU
Slow e^+	Moderator, transport line	**IRFU**, Swansea, TUS
e^+ accumulation	Input/output bunchers, e^+ trap	**RIKEN**, IRFU, CSNSM, Swansea
Positronium	e^+/Ps converter, excitation laser	**LKB**, IRFU, ETHZ
Antiproton deceleration	$\bar{p}$ decelerator and focus	**CSNSM**, IRFU, LKB, Tokyo
$\bar{H}$ & $\bar{H}^+$	e^+ and $\bar{p}$ transport to interaction region, $\bar{H}$ & $\bar{H}^+$ detection	**Swansea**, IRFU, LKB
$\bar{H}^+$ cooling	Deceleration & Paul traps, cooling lasers, detection	**Mainz**, LKB, ILL
Detector	Trigger and veto scintillators, tracker system	**ETHZ**, IRFU, Mainz
Theory	Ps-H interactions, plasma trapping	**IPCMS**, Lebedev, Uppsala
Slow control, DAQ	Centralized slow control & DAQ	**IRFU**, all
Quantum states		**ILL**, All

The definition of the content of each Work Package must be made more precise

The **interfaces** between these WPs must also be defined

This will help in the follow up of the construction of GBAR. It is an evolving process.

Documentation should be made easy (eDoc ?)

Funding must be searched for in the probable case that the ERC application fails, i.e asap!!!

Example of **contact persons**,

to be nominated

Task:
Organize WP work and funding search

Country	Institute	Contact Person
FRANCE	CSNSM, CNRS : UMR8609 – IN2P3 – Université Paris Sud - Paris XI	D. Lunney
FRANCE	Institut Laue-Langevin (ILL), 6 rue Jules Horowitz, F-38042 Grenoble	V. Nesvizhevsky
FRANCE	IPCMS, 23 rue du Loess, F-67037 Strasbourg	P-A. Hervieux
FRANCE	IRFU, CEA, Saclay, F-91191 Gif-sur-Yvette Cedex	P. Pérez
FRANCE	LKB, CNRS : UMR8552 – Université Pierre et Marie Curie - Paris VI – Ecole Normale Supérieure de Paris, Université d'Evry Val d'Essonne F-91025	P. Indelicato
GERMANY	Johannes Gutenberg Universität, D-55128 Mainz	J. Walz
JAPAN	Atomic Physics Laboratory, RIKEN, 2-1 Hirosawa,Wako, Saitama 351-0198	Y. Yamazaki
JAPAN	Institute of Physics, University of Tokyo, 3-8-1 Komaba, Meguro, Tokyo 153-8902	N. Kuroda
JAPAN	Department of Physics, Tokyo University of Science, 1-3 Kagurazaka, Shinjuku, Tokyo	Y. Nagashima
POLAND	Narodowe Centrum Badań Jądrowych ul. Andrzeja Sołtana 7, 05-400 Otwock, Świerk	S. Wronka
RUSSIA	P. N. Lebedev Physical Institute, 53 Leninsky Prospect, 117924 Moscow	A. Voronin
SWEDEN	Department of Quantum Chemistry, Uppsala University, Box 518, SE-75120 Uppsala	P. Froelich
SWITZERLAND	IPP, ETHZ, CH-8093 Zürich	P. Crivelli
UNITED KINGDOM	Department of Physics, Swansea University, Swansea SA2 8PP	M. Charlton

Structure of the Collaboration

Team members

Country	Institute	Members
FRANCE	CSNSM	G. Chardin, P. Dupré, D. Lunney, V. Manea
FRANCE	ILL	V. Nesvizhevsky
FRANCE	IPCMS	P-A. Hervieux, G. Manfredi
FRANCE	IRFU	P. Debu, L. Liszkay, B. Mansoulié, P. Pérez, J-M. Rey, Y. Sacquin, B. Vallage
FRANCE	LKB	F. Biraben, P. Cladé, A. Douillet, A. Gérardin, S. Guellati, L. Hilico, P. Indelicato, A. Lambrecht, R. Guérout, J-P. Karr, F. Nez, S. Reynaud, V-Q. Tran
GERMANY	JGU	J. Walz, F. Schmidt-Kaler
JAPAN	RIKEN	A. Mohri, Y. Yamazaki
JAPAN	U. Tokyo	N. Kuroda, H. Torii
JAPAN	TUS	Y. Nagashima
POLAND	NCBJ	S. Wronka
RUSSIA	Lebedev	A. Voronin
SWEDEN	Uppsala	P. Froelich
SWITZERLAND	ETHZ	A. Badertscher, P. Crivelli, A. Curioni, A. Marchionni, B. Rossi, A. Rubbia
UNITED KINGDOM	Swansea	M. Charlton, S. Eriksson, N. Madsen, D.P. van der Werf

Structure of the Collaboration

- Spokesperson and deputy
- Steering Commitee
- Technical coordinator
- GLIMOS (Group Leader in Matters of Safety)

Cost estimate for ERC application

	Cost Category	Months 1-18	Months 19-36	Months 37-54	Months 55-72	Total (72)
Direct Costs:	*Personnel:*					
	PI	254 028	254 028	254 028	254 028	1016 113
	Senior Staff	919 194	919 194	919 194	919 194	3676 774
	Post docs	410 916	410 916	410 916	410 916	1643 664
	Students	356 172	356 172	356 172	356 172	1424 688
	Other	155 908	155 908	155 908	155 908	623 630
	Total Personnel:	2096 217	2096 217	2096 217	2096 217	8384 869
	Other Direct Costs:					
	Equipment	1857 747	1857 747	1857 747	92 205	5665 446
	Consumables	80 568	80 568	80 568	80 568	322 272
	Travel	57 000	57 000	171 000	171 000	456 000
	Publications, etc	24 989	24 989	24 989	24 989	99 955
	Other	0	0	0	0	0
	Total Other Direct Costs:	2020 304	2020 304	2134 304	368 762	6543 674
	Total Direct Costs:	4116 521	4116 521	4230 521	2464 979	14928 542
Indirect Costs (overheads):	Max 20% of Direct Costs	823 304	823 304	846 104	492 996	2985 708
Subcontracting Costs:	(no overheads)	162 000	162 000	162 000	162 000	648 000
Total Costs of project:	(by year and total)	5101 825	5101 825	5238 625	3119 975	18562 251
Requested Grant:	(by year and total)	3619 444	3619 444	3756 244	1637 593	12632 725

MoU

Will be signed by each institute and CERN

March 2012

Memorandum of Understanding

for the Construction of the GBAR/AD-XXX Experiment

between

The EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH, "CERN",
an Intergovernmental Organization having its seat at Geneva, Switzerland,
as Host Laboratory

on the one hand,

and

the Collaborating Institutions/Funding Agencies of the GBAR Collaboration

on the other hand.

Investment

Draft of MoU

(from CERN template)

Should separate

- already spent
- obtained
- to search for

Responsibility	Deliverables	Cost (k€)	Institutes
Fast e^+	Electron linac	525	**NCBJ**, IRFU
	Primary target	50	
Slow e^+	Neon moderator	430	**IRFU**, Swansea, TUS
	Tungsten moderator	50	
	Transport line	180	
e^+ accumulation	Input/output bunchers	200	**RIKEN**, IRFU, CSNSM, Swansea
	e^+ trap	**1400**	
Positronium	e^+/Ps converter development	250	**LKB**, IRFU, ETHZ
	excitation laser	**400**	
Antiproton deceleration	$\bar{p}$ decelerator and focus	**100**	**CSNSM**, IRFU, LKB, Tokyo
$\bar{H}$ & $\bar{H}^+$	e^+ and $\bar{p}$ transport to interaction region, $\bar{H}$ & $\bar{H}^+$ detection	400	**Swansea**, IRFU, LKB
$\bar{H}^+$ cooling	313 nm sources	470	**Mainz**, LKB, ILL
	Traps and chamber	200	
	Photodetachment	140	
Detector	Trigger and veto scintillators, tracker system	500	**ETHZ**, IRFU, Mainz
Theory	Ps-H interactions, plasma trapping	20	**IPCMS**, Lebedev, Uppsala
Slow control, DAQ	Centralized slow control & DAQ	270	**IRFU**, all
Quantum states	Granite support plate with active compensation, magnetic shield, clean room	300	**ILL**, All
Total		5885	