

# Task List Phase I

Task	Who	Available / work so far
<b>MC</b>		
Muon veto system		
Neutron absorber		
Muon induced neutrons		
Detailed simulation of setup		(MPIK)
Scintillation light collection / shields / rates		
<b>Material screening</b>		
Vessel material		MPIK, LNGS
Detector support material		MPIK, LNGS
Gas quality monitoring		MPIK
<b>Vessel</b>		
Design		MPIK
Main steel vessel		
Lead shield		
Inner lining / reflector / ...		
Lock / cleanroom		
Interface for scintillation detectors		
<b>Detector calibration</b>		
Calibration concept, simulation		
Calibration system mechanics		
Sources, monitoring		
<b>Instrumented muon veto/neutron shield</b>		
Water vessel		
Water purification		
Immersed PMTs		
Readout electronics		MPIK: 500 ch. 40 MHz 8 Bit FADC, Trigger, Readout
Calibration system		
<b>Cryo-Liquid</b>		
Gas purification / monitoring		
Gas handling / storage / filling		
LAr recondensation		
Gas slow control / monitoring		
<b>Germanium detectors</b>		
Detectors		Kurchatov, INR, ITEP
Contacts		(MPIK)
Suspension		(MPIK)
Refurbishing of existing detectors		
<b>Germanium electronics</b>		
Cables		(MPIK)
Front-end/FET		HD ASIC Lab
Signal recording		(MPIK)
<b>DAQ / slow control</b>		
DAQ hardware		MPIK: VME crates, CPUs
DAQ framework		(MPIK)
Slow control framework		(MPIK)
Data formats / analysis tools		
<b>Work space</b>		
Control room / prep. rooms		
Laboratory equipment		
<b>LOI</b>		
Coordination		
Contact person at LNGS		
GLIMOS (safety)		
Requests to LNGS		
Underground space, geometry		
Time for installation, commissioning, running, .		
Outside space, time, ...		use CTF as model ?
Infrastructure needs		
Requests to services		
Underground detector fabrication, Phase II		
Safety issues		
<b>Scintillation detectors (Phase II?)</b>		
R&D Reflectors / shifters / light shields		
R&D Immersed PMTs, interfaces		
PMT production, preparation, test, ...		
Readout electronics		

# Task List Phase II

## **Ge detector design**

Field simulation and optimisation

Segmentation simulation

Segmentation implementation

Pulse shape simulation

Pulse shape implementation

... Smarter detectors ... probably Phase III

## **Ge procurement**

Procedure

Material validation

## **Detector fabrication**

Identification of time-critical steps

Selection of manufacturer

Own (underground) facilities

## **Electronics**

Electronics for segmented / pulse shape readout

		Phase Ia	Phase Ib				
Topic	Status	Cost		Institutes			
Simulation	critical: detail, n			MPIK	Tuebir	INR	Kurtc
Material properties, material screen	existing possibilities sufficient?			MPIK	INFN	INR	
Vessel	nontrivial but doable / cost?	1500		MPIK			
Clean room, lock	nontrivial but doable / cost?	500		MPI Mu			
Detector suspension	nontrivial but doable	50		MPI Mu	MPIK		
Detectors 76Ge (old)	critical	150		Kurchatc	ITEP	INR	Tue
Detectors 76Ge (new)	critical		1500	"	MPI M	Koeln	INFN
Electronics	adapt existing solutions	80	80	MPIK	INFN?		
DAQ and control	adapt existing solutions	30		MPIK			
Calibration	?	50		?			
Muon shield	probably not too difficult	250		JINR ?	Tue?		
LN2, cleaning, handling	seems ok	500		MPIK			
LAr, cleaning, handling	probably ok		300	MPIK	INFN?		
Scintillation detection	critical: design impact, gain		400	MPIK			
LGNS facilities, safety, ...	nontrivial but doable / cost?	200					
Normal Ge detectors (Travel, support,...)							
Cost/funding (+50%,-0%)	critical	3310	2280				
<b>LOI (submit?)</b>							
Theme: R&D facility with significant physics potential							
List of participants							
Editor: Knoepfle							
Strategy: don't hide open issues							
Formal structure: later							
Requests to LNGS: smaller circle							
<b>Next 6 months</b>							
Try to resolve critical issues, costs							

Vessel				
	10 <sup>-3</sup> with LN			
	10 <sup>-4</sup> with LAr			
	Conservative selection of inner vessel/isolation			
	Cost			
	To check: neutrons			
	Vibration isolation			
Clean room / lock				
	Define insertion procedure			
	Define insertion scenario			
	Sequential insertion / materials testing			
Active LAr				
	influences			
		height of vessel		
		size of detector arrangement		
		top lid		
		top isolation		
	critical issue			
		light collection		
			wavelength shifter	
			reflector quality	
			reflector geometry	