ILIMA Status Report

Helmut Weick, GSI

Darmstadt, 30th Nov 2011

- NUSTAR organization
- FAIR status
- Finances
- HESR ?

NUSTAR Organisation

From Nustar Technical Board / Collaboration Committee

New People

Technical Coordinator	**Jürgen Gerl (half time by FAIR)**
Resource Coordinator	**Alexander Herlert (full time by FAIR)**
Adminstrative + Technical Officer	**Namita Goel (no dedicated position)**

New MoU, money matrix update
but also other changes in text (draft)

Common funds sorted by large, medium, small institutes?
Pay people? Workshops? Common WG?

Nustar Meeting, 27.02-2.03.2011 at GSI
NUSTAR week -> Kolkata, India in Oct.

Working Groups

ILIMA Working Groups / Technical Board

Sub-Project	Group Leader		Institute
Project Manager, Chair	**H**	**Weick**	GSI, Darmstadt
Simulation and Beam Handling	H	Weick	GSI, Darmstadt
Evaluation Software	Yu	Litvinov	GSI, Darmstadt
Physics and Theory Programs	Z	Patyk	Soltan Inst + Univ. Warsaw
ToF Detectors	W	Plaß	GSI + Univ. Giessen
Schottky Detectors	C	Kozhuharov	GSI, Darmstadt
Other Detectors	I	Dillmann	Univ. Giessen
Spokesperson	P	Walker	Uni. Surrey
Deputy-spokesperson	Yu	Litvinov	GSI, Darmstadt

FAIR Status

Signed contribution

Germany Finland India Romania Russia Sweden

Not Signed

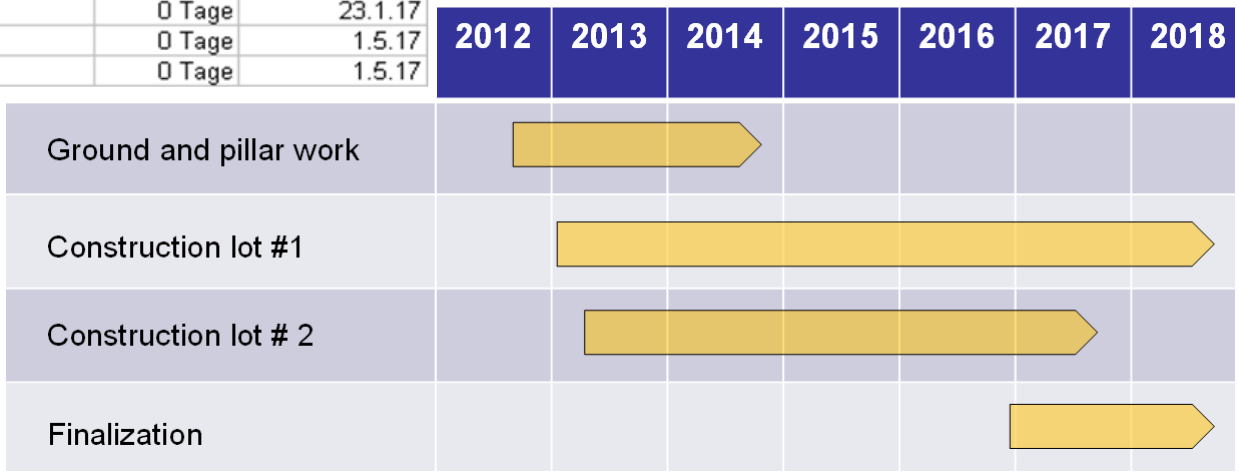
France Poland Slovenia

negotiations

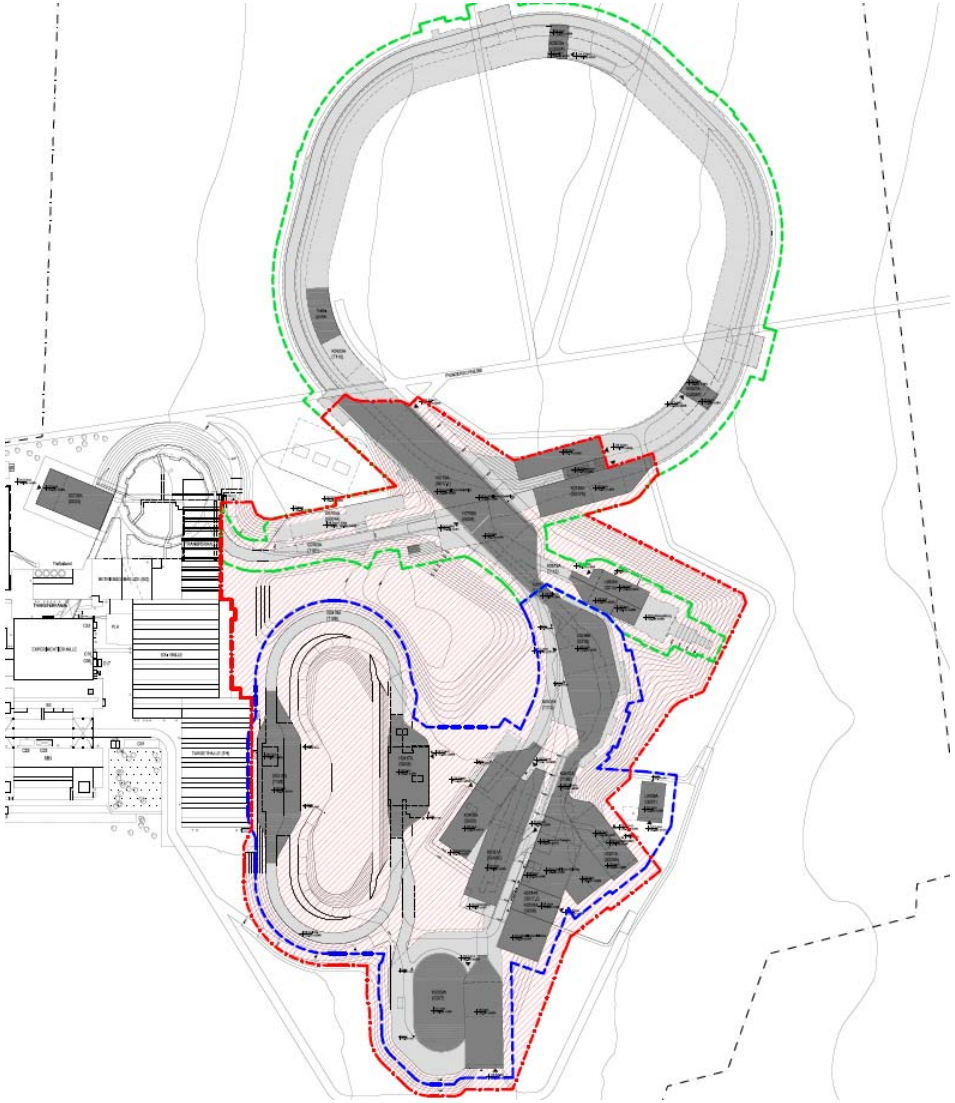
Present Schedule Civil Construction:

Vorgang	Dauer	Datum
Ready to move in HEBT Connection SIS18- SIS100	0 Tage	29.4.16
Ready to move in HEBT SIS100	0 Tage	29.4.16
Ready to move in SIS100	0 Tage	29.4.16
Ready to move in p-LINAC	0 Tage	29.4.16
Ready to move in HEBT -T1F1...	0 Tage	28.10.16
Ready to move in Super-FRS	0 Tage	28.10.16
Ready to move in HEBT TAP1 ...	0 Tage	23.1.17
Ready to move in p-bar Target	0 Tage	23.1.17
Ready to move in CR	0 Tage	23.1.17
Ready to move in HESR	0 Tage	23.1.17
Ready to move in HEBT - T1X1...	0 Tage	1.5.17
Ready to move in Multifunction Caves (CBM, HADES)	0 Tage	1.5.17

Dieter Krämer
Nustar Meeting Oct. 2011



The Construction Concept



Pillars to stabilize the ground (lot # 0)

Construction lot # 1

Construction lot # 2

Tunnel and underground buildings

Surface buildings

ILIMA Cost Table

only investments are counted, 2005 prices

	costs	no.	costs	
TOF detector				
new vacuum chamber for detector positic	60	1	60	
vacuum chamber for pos2, parts reused	20	1	20	
magnets	5	2	10	
vacuum pumps, valves controllers	90	1	90	
detector, MCP	25	2	50	
Electronics, power supplies	25	2	50	
slow control of HV and step motor	2	2	4	
scaffolding with adjustment	2	2	4	
cables for signals and control	2	1	2	
DAQ				
DAQ(Oscilloscopes)	60	2	120	
data storage	15	1	15	
			425	k€
Decay detectors				
vacuum pockets	20	4	80	
detectors with individual readout	54	2	108	
DAQ				
DAQ(VME crate + controller)	20	1	20	
			208	k€

	costs	no.	costs	
Storage ring development			0	
Schottky				
Pick-ups CR	25	4	100	
Pick-ups NESR	25	8	200	
Cavity couplings	10	12	120	
Cavity closings, incl. control	15	12	180	
Low-noise, broad-band amplifiers	25	12	300	
DAQ				
Amplifiers	1	12	12	
Remotely controlled tunable mixe	10	12	120	
Remotely controlled tunable LO	10	12	120	
Data acquisition, VME crate	10	2	20	
ADCs	1	72	72	
Cables, connectors, and such	5	2	10	
data storage	15	1	15	
			1269	k€
		sum:	**1902**	k€

German Project Funding
(PMA = Projektmittelantrag)

- All direct German project funding by BMBF goes via GSI, except for HESR and parts of PANDA (FZ Jülich).
- Careful list of components according to cost book to finance modules 0-3, but only smaller share for experiments.
- Long discussion, often rejected, still not signed (1st Dec.2011 ?) but experiment part orally approved in summer
- Should be basis for financing and accounting.

6020 k€ for NUSTAR in PMA
740 k€ for ILIMA in PMA

1.2.6 ILIMA			740		
1.2.6.4	ToF detectors	290	290	100%	
1.2.6.5	Decay detectors	188	188	100%	
1.2.6.6	DAQ	524	262	50%	Welche Einzelkomponenten zu jeweils 100% aus den deutschen Projektmitteln finanziert werden, wird mit Fertigstellung des TDR feststehen und nachgereicht werden.

Table on ILIMA in PMA

Additional money for FAIR possible via Universities even from BMBF.

Funding

A requirement for getting PMA money or investment money from BMBF via Universities (BMBF Verbund) is a TDR.

Last board meeting (Nov 2010) decision to write 2 TDRs (Schottky and ToF) in 2011, but not done.

This time BMBF Verbund applications for R&D only

- **ToF (Wolfgang Plaß, Christoph Scheidenberger) -> Gießen**
- **Particle detectors (Iris Dillmann, Thomas Faestermann) -> Gießen, TUM**

Submission 1st December, next round 2015-2018

MoU

following IMoU now Pre-Construction MoU

Collaborators? money matrix?

Heavy Ions in HESR ?

Brought forward by Thomas Stöhlker (SPARC)
at GSI internal presentations,
Motivation for SPARC high Lorentz factor program
and usually not so high demands on luminosity

Technically feasible with many drawbacks

+ Precooled beam from CR fits into narrow HESR aperture
+ Electron cooler available
- Magnet and cooler stability not good for masses
+ Installation of second target possible
- Only 10^{-9} mbar vacuum (excludes slowing down)
- No space for extended installations in tunnel (EXL)
- No setup for fast exchange work in tunnel blocks beam
- Weak shielding (max. ~10^5 heavy ions ?)
- No collider (ELISe, AIC)

Strategy ?

GSI storage ring group investigates details
(accumulation, target position, ring mode …)

HESR

90 mm diameter aperture, 800 MeV/u cooler, L = 574 m

$B\rho$ = 12.7 - 50 Tm, designed for ε ~ 1 mm mrad, geom. max. ε ~ 10 mm mrad

$(x,\delta)_{max}$= 9m => $\Delta p/p_{max}$~ $2x10^{-3}$, HF stacking for heavy ions?