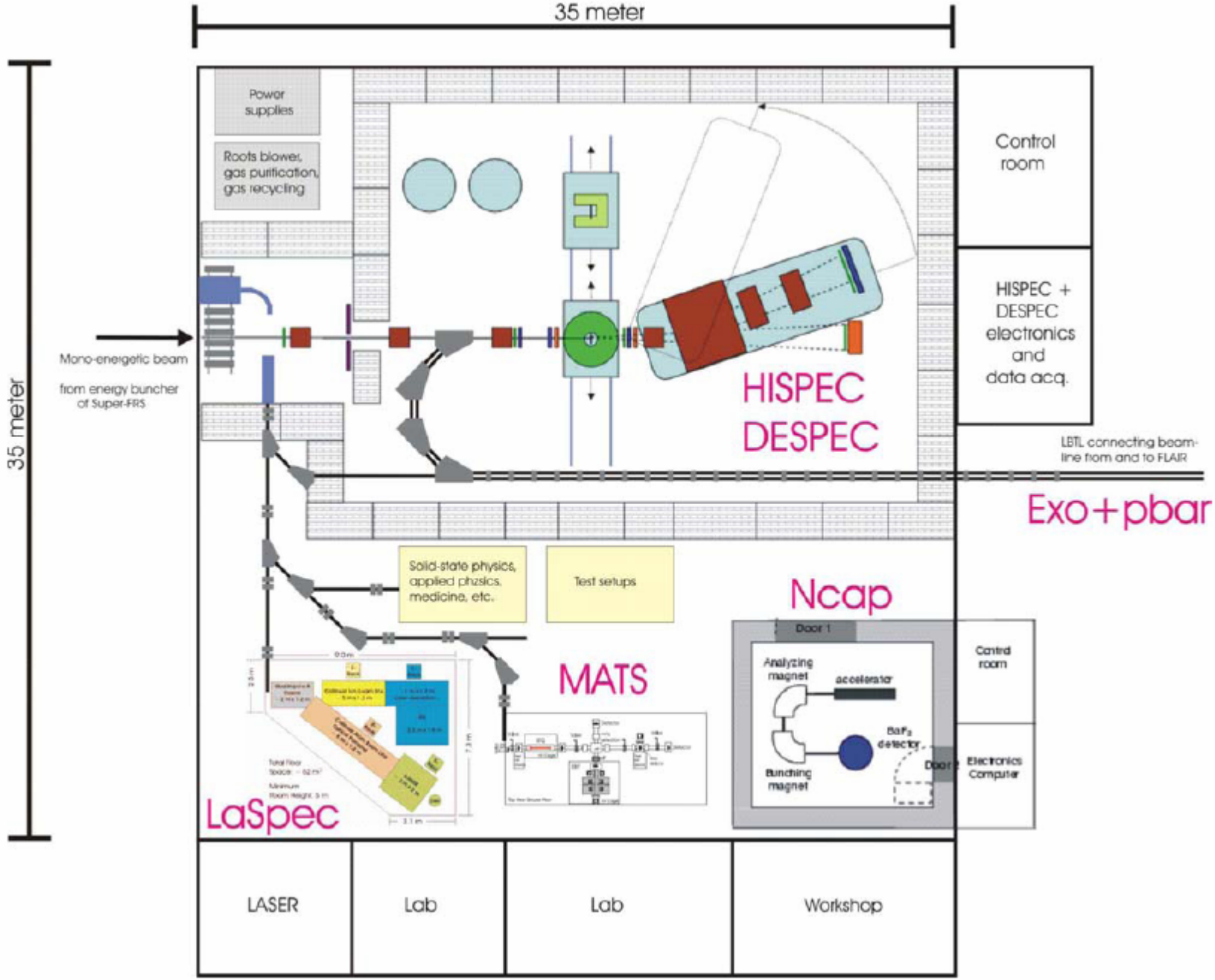

Fig. 1 Overview of the experimental area of the Low-Energy Branch

15th June

1. Information about the PAC discussion and ranking, CORE review group, ground plan update, NUSTAR meeting board-spokespersons\x{2026}(15 + 30)(B. Rubio and Z. Podolyak)(HISPEC/DESPEC)

2. Working group: implantation detector (T.Davinson)(15+30)(DESPEC)

3. Working group: Ge array (A. Algora) (15 + 30)(DESPEC)

Coffee break

4. Background (A. Maj) (15 + 10)(HISPEC/DESPEC)

4. Working group: neutron detectors (D. Cano) (15 + 30)(DESPEC)

5. Timing (H. Mach)(10 + 10)(DESPEC)

6. TAS (J.L. Tain) (10+10)(DESPEC)

7. Moments (D. Balabanski) (10+10)(DESPEC)

Lunch

8. Working group: simulation (M. Labiche)(10+10)(HISPEC/DESPEC)

9. Electronics and DAQ (Nyberg) (15 + 30) (HISPEC/DESPEC)

10. Common points with SPIRAL II (15 + 30) (HISPEC/DESPEC)

11. The MOU (Z. Podolyak) (10 + 10) (HISPEC/DESPEC)

Paella on the beach

16th June

12. Energy buncher (H. Weick?)(10 + 20)(HISPEC/DESPEC)
13. Beam identification detectors (Z. Podolyak and P.Sellin (10 + 10)(HISPEC/DESPEC)
14. AGATA (W. Korten) (15 + 30)(HISPEC)

Coffee break

15. HYDE charged particle detectors for reaction studies (I. Martel) (10 + 20)(HISPEC)
16. charged particle detectors for structure studies (M. Bentley)(10 + 20) (HISPEC)

Lunch

17. plunger (A. Dewald)(10+ 10)(HISPEC)
18. magnetic spectrometer (D. Ackermann)(10 + 30)(HISPEC)
19. Future, next steps, next meeting (HISPEC/DESPEC)
20. any other business (HISPEC/DESPEC)

The meeting will last from 15th at 9am until 16th at 5 pm

PAC (March 2005) results : HISPEC DESPEC

The PAC feels that the value of the science is indisputable and an important component of research at the future FAIR facility. The need for the measurements in this proposal is high.

For intermediate energies, HIPSPEC uses methods that are technically feasible and will benefit from the implementation of the forward fraction of AGATA. The experiments are well conceived and should produce excellent physics.

DESPEC is a natural exploitation of the rare exotic nuclei beams that emanate from FAIR. Decay spectroscopy of new nuclei is one of the key elements of exotic nucleus research. The experiments will employ highly segmented detectors to overcome the problem of gamma-flash from the degrading foil that slows the beams to 10 MeV/u, which will affect the performance in the sub-ms half life regime. It is noted that the distance to the final slowing down foil can be of the order of 10 meters which should lessen the effect of the photon shower and possibly allow standard clover detectors to be used in place of the complex highly segmented system. The design of the segmented gamma- and the high-resolution neutron-detector arrays should be pursued with high priority.

PAC (March 2005) cont.

However, for low energies, there are several perceived problems in the experimental configuration as proposed. In particular, beam identification at 5 MeV/u is an area that requires considerable R&D. The beam characteristics will impact the design of any subsequent detector array and beam tracking/identification system. Despite initial simulations, there is evidently significantly more work that has to be done in this area. Further simulations and design studies depend crucially on the progress of the LEB design. Another possibility to improve the low energy beam quality is to use cooled and slowed down beams from the NESR. Studies of this possibility must take into account the fairly long slowing down times to Coulomb Barrier energies (ca. 60 s, which, though would still enable 68Ni and 132Sn beams). The collaboration has made the case for a large solid angle magnetic spectrometer; however, this case is too general and does not specify which physics problems it will address. The spectrometer also has to adapt to the large momentum spread of any recoil products. This proposal should have laid out a better structure for the development of the technically challenging instrumentation for slowed down beams. It is important that this R&D be pursued, but a better framework has to be found, and the collaboration should work more cohesively towards this direction. It should be noted, though, that the collaboration is very large and diverse and represents a large number of areas of particular expertise.

PAC (March 2005) cont. (summary)

Overall, the HISPEC/DESPEC proposal is unique to FAIR for exotic nuclei that cannot be produced in reasonable quantities at other fragmentation facilities or for refractory elements that cannot be produced at ISOL facilities. Additionally, the high energy part of HISPEC is unique to FAIR for exotic nuclei that cannot be produced in reasonable quantities at other fragmentation facilities and for the study of double fragmentation. The present RISING program at the FRS provides an excellent R&D study ground for the key design problems of the entire proposal.

This proposal is on track for 2010 except for the low-energy part of HISPEC that needs considerable R&D, and design work. This part of the proposal would benefit from an early and clear definition of the beam quality and parameters following degrading to Coulomb barrier energies. There is a close connection between the beam specifications, the design of the beam identification and tracking system, the civil engineering for the experimental area, and the space requirements. These issues must be addressed promptly and in a coordinated way.

PAC results and baseline discussions:

PAC result	
A+	R3B
A	HISPEC(int E)/DESPEC
A	ILIMA
A	LASPEC
A	MATS
B	AIC
B	ELISE
B	EXL
B	NCAP
C	exo-pbar
C	HISPEC/DESPEC (low E)

(FAIR: 989 MEuro; NUSTAR equipment:~20MEuro)

According to this: HISPEC/DESPEC in the baseline:

Summary of the costs:

Item	Cost (M Euro)	Manpower (many ears)	
Beam tracking and identification detectors	0.5	8	HISPEC/DESPEC
Active targets	0.3	2	HISPEC
AGATA	From other resources		HISPEC
HYDE charged particle detectors for reaction studies	1.5	9	HISPEC
Charged particle detectors for structure studies	0.530 +0.081 (Coulomb energy)	16	HISPEC
Plunger	0.113	6	HISPEC
Magnetic spectrometer	0.1 (ALADIN) + 3.5 (new design)	20	HISPEC
Common EDAQ	0.6		HISPEC/DESPEC/NUSTAR
DSSD implantation and decay det.	0.975	12	DESPEC
DESPEC high resolution gamma det.	4.9	32	DESPEC
Fast timing	0.47	9	DESPEC
Neutron detectors	1.064	16	DESPEC
Total absorption spectrometer	0.5	4	DESPEC
Isomeric moments	0.15	8	DESPEC
Total	**15.383**	**142**	HISPEC/DESPEC

comments from CORE meeting 1-2 June 2005:

CORE assumes that VAT is not included in the costing when parts are ordered through GSI. Otherwise, if the group has to pay VAT, it is included.

There are four comments, which apply to almost all the experiments:

1. The cost for fire safety of electronic racks should be included
2. All cost sums should be rounded to full kEuro.
3. Please make a statement, in case you have received offers fully corresponding to your requirements, which contradict our estimates.
4. Manpower
   - what is the manpower available now
   - what is the amount of manpower missing

HISPEC/DESPEC specific comments

- The cost for the complete push-pull mechanism has to be included i.e. rails including installation, hydraulic pistons, cable chains
- The cost for installation, scaffolding, jigs and fixtures for detector assembly and maintenance as well as survey and long cabling (1.5 Euro/m/cable) and cable trays has to be added
- The cost for local safety installations has to be added
- Cost for a slow control system have to be included

The production cost for the Si(Li) and Ge detectors can only be maintained if the support from Juelich is guaranteed.

=> Costs go up!

New cost estimates should be submitted by 8th of July 2005

Platform: Motors, gear box control system	~7.kEuro
Rails	~16.1k
Platform mechanics etc.	~33.1k

Array structure:	~ 200k Euro.
Autofill:	~500Euro/m
Safety system:	~6kEuro/rack

(From: J. Simpson, I.Lazarus, I.Kojouharov)

Memorandum of Understanding

on the design, construction and building of the

HISPEC/DESPEC setups

at the Low-Energy Area at the Super FRS

F. Calviño (Univ. Politécnica Cataluña, Barcelona, Spain)
N.V. Zamfir (IFIN-HH, Bucharest, Romania)
G.D. Dracoulis (ANU, Canberra, Australia)
J. Simpson (CCLRC Daresbury, Daresbury, UK)
J. Gerl (GSI, Darmstadt, Germany)
R. Lovas (ATOMKI, Debrecen, Hungary)
S. Mandal (Univ. of Delhi, India)
P. Woods (Univ. Edinburgh, Edinburgh, UK)
L. Batist (PNPI, Gatchina, Russia)
P.M. Walker (Univ. Surrey, Guildford, UK)
I. Martel (Univ. Huelva, Huelva, Spain)
M. Leino (JYFL, Jyvaskyla, Finland)
J. Jolie (Univ. Köln, Köln, Germany)
A. Maj (IFJ PAN Krakow, Krakow, Poland)
G. Neyens, (KU Leuven, Leuven, Belgium)
R. Crespo (Instituto Superior Tecnico, Lisboa, Portugal)
R. Crespo (Centro de Fisica Nuclear, Univ. Lisboa, Lisboa, Portugal)
P.J. Nolan (Univ. Liverpool, Liverpool, UK)

D. Rudolph (Univ. Lund, Lund, Sweden)
A. Jungclaus (Univ. Autonoma de Madrid, Madrid, Spain)
D.M. Cullen (Univ. of Manchester, Manchester, UK)
R. Krücken (TU München, München, Germany)
B. Chapman (Univ. Paisley, Paisley, UK)
M. Hass (Weizman Inst. Rehovot, Rehovot, Israel)
J. Gomez-Camacho (Univ. Sevilla, Sevilla, Spain)
G. Rainovski (Univ. Sofia, Sofia, Bulgaria)
B. Cederwall (KTH, Stcokholm, Sweden)
I. Izosimov (RI, St. Petersburg, Russia)
H. Mach and J. Nyberg (Uppsala Univ., Uppsala, Sweden)
B. Rubio (IFIC, CSIC, Valencia, Spain)
M. Pfuetzner (Univ. Warsaw, Warsaw, Poland)
M. Bentley (Univ. of York, York, UK)

32 institutions
15 countries

HISPEC/DESPEC collaboration structure

Management Board

Spokesperson(HISPEC)	Zsolt Podolyák / Wolfram Korten
Spokesperson(DESPEC)	Berta Rubio
Deputy (HISPEC)	Jan Jolie
Deputy (DESPEC)	Phil Woods
Project manager (HISPEC)	Juergen Gerl
Project manager (DESPEC)	Magda Gorska

Collaboration Board

The members are the signatories of the Memorandum of Understanding.

32 institutions, 15 countries

Technical Board

	member	**affiliation**
beam tracking and identification detectors	J.M. Quesada	University Sevilla, Spain
AGATA	J. Simpson	CCLRC Daresbury,UK
HYDE charged particle detectors for reaction studies	I. Martel	Huelva University, Spain
Charged particle detectors for structure studies	D. Rudolph	Lund University, Sweden
Plunger	A. Dewald	Koln University, Germany
Magnetic spectrometer	D. Ackermann	GSI Darmstadt, Germany
DSSD implantation and decay detector	P.J. Woods	Edinburgh University, UK
DESPEC high resolution gamma detectors	A. Jungclaus	Universidad Autonoma de Madrid, Spain
Neutron detectors	D. Cano-Ott	CIEMAT Madrid, Spain
Total absorption spectrometer	L. Batist	PNPI Gatchina, Russia
Fast timing with BaF2	H. Mach	Uppsala University, Sweden
Isomeric moments	D. Balabanski	Camerino University, Italy
Electronics and Data acquisition	J. Nyberg	Uppsala University, Sweden

The HISPEC/DESPEC collaboration has a Management Board (with joint spokespersons, deputies and project managers), a Technical Board and a Collaboration Board. The Collaboration Board is composed of the signatories to this MoU. It oversees the physics and policies of the collaboration. The management board manages the project and reports to the Collaboration Board. The Technical Board is composed of the coordinators of the working groups and it is chaired by the project managers. It reports to the management board.

Your promise:

The signatories of the HISPEC/DESPEC MoU intend to bid for funds to provide the additional personnel and investment money needed for the design and construction of the experimental setups described in the Technical Proposal. The current list of tasks as well as information on how the work is shared is given in the Technical Proposal.

The HISPEC/DESPEC collaboration is open for new collaborators.