European User Office Meeting

HZB Helmholtz Zentrum Berlin

Lund, October 2017

Quality Management at BESSY II

Antje Vollmer

Outline

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Introduction – a few numbers, facts, and developments

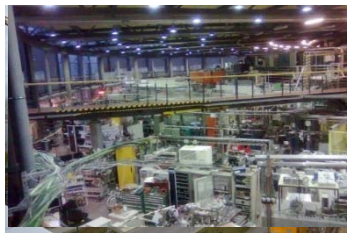
Quality Management

Feedback schemes and feedback handling

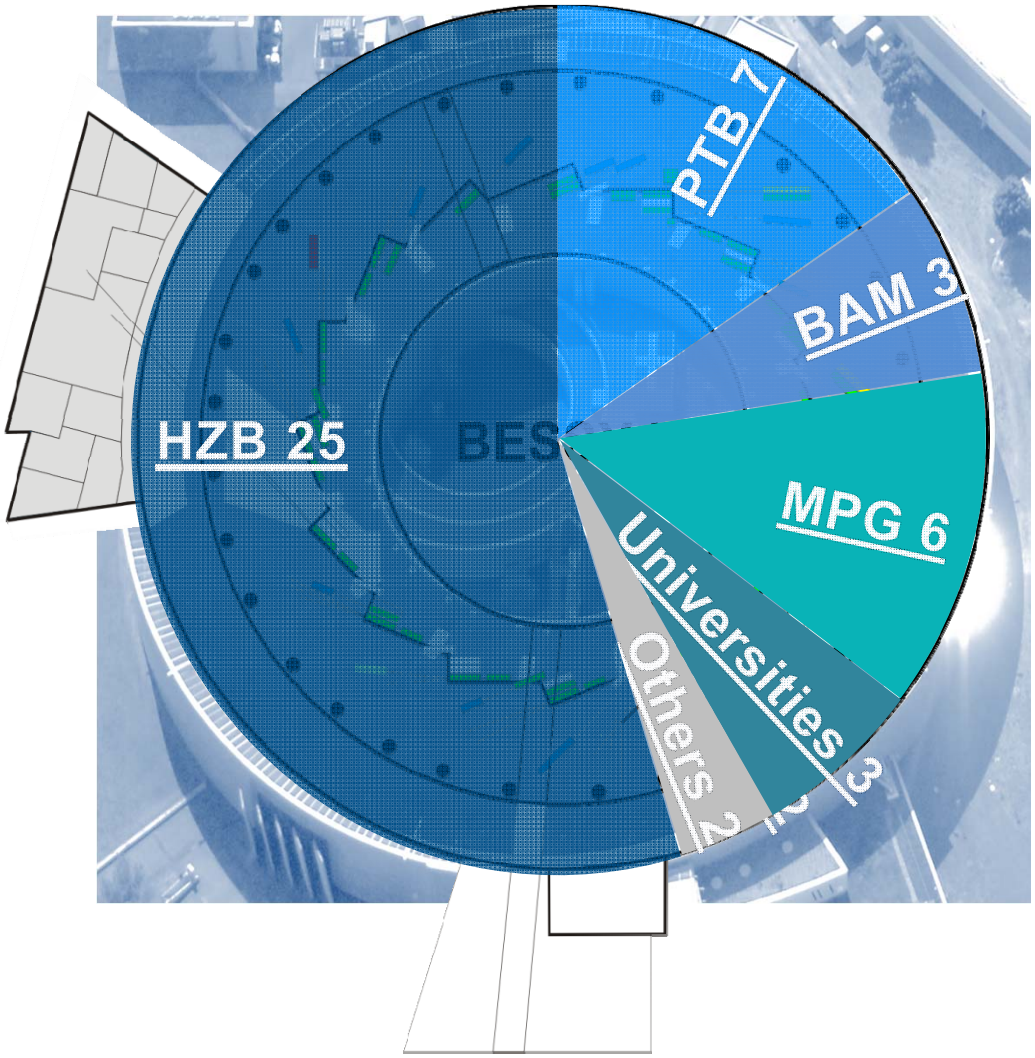
Communication with users

New users and communities - CALIPSOplus






Infrastructure I – BESSY II



Beamlines:

46 beamlines total, thereof

34 beamlines in user operation

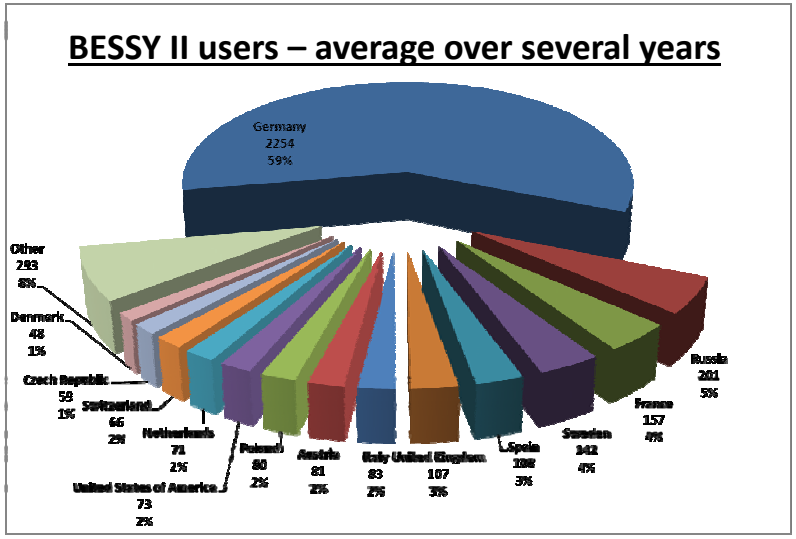
3 under commissioning

5 under construction

3 to be constructed in 2018

→ **BESSY II focuses on VUV to soft X-rays,**
→ **but we offer radiation fromTHz to hard X-rays**

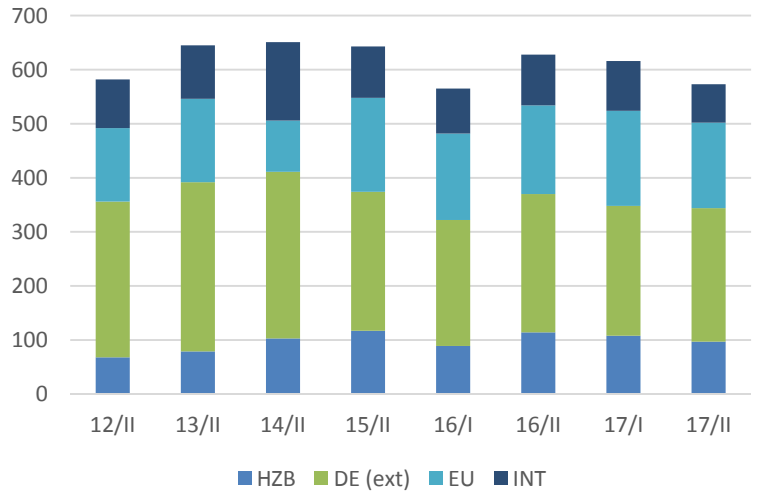
Our Users and their Proposals



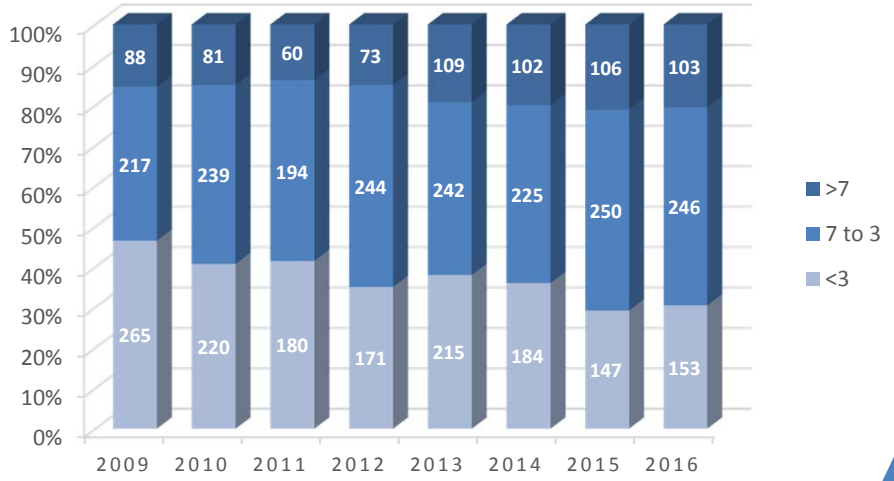
Average numbers:

- More than 1200 proposals per year
- About 800 beamtime campagnes
- More than 500 (verified) publications
- More than 3000 user visits
- More than 7300 registered GATE user
- 12000 overnight stays in the guesthouse

Proposal BESSY II



Publications



Instrument Developments

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AQUARIUS
Construction will start 2018

ENERGIZE
Under construction

RGBL
Implementation of circular polarization

meVRICXS
No longer in use

U125-2 RGBL ID beamline
Under construction

EMIL
Under commissioning

BElChem
Construction will start 2018

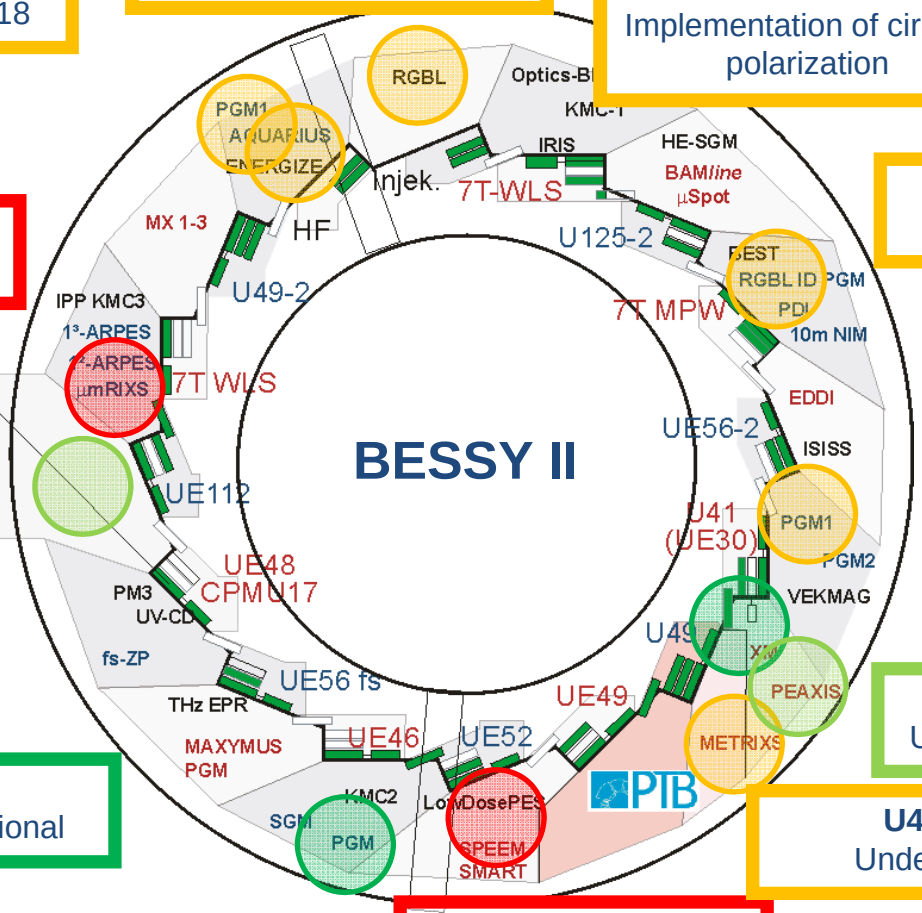
U41 XM
Fully operational

U41 PEAXIS
Under commissioning

UE52 PGM
coESCA fully operational

U41 METRIXS
Under construction

UE49 SGM CXS
No longer in use



More than large scale facilities – the CoreLabs@HZB

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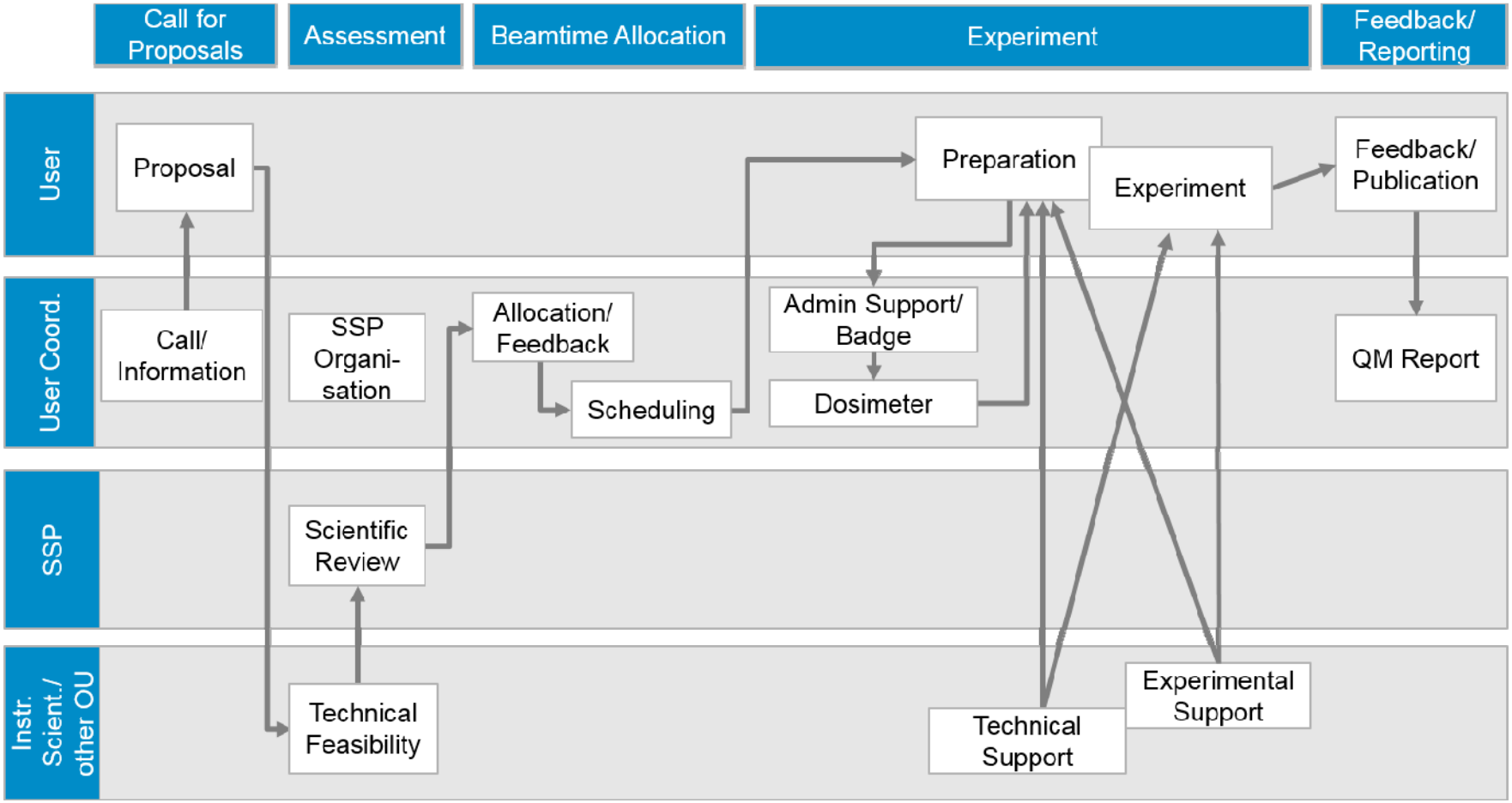
The Helmholtz-Zentrum Berlin für Materialien und Energie (HZB) is setting up CoreLabs, a new multi-user platform also available for external academic and industrial partners. These new CoreLabs are complex infrastructures with unique and state-of-the-art equipment. The main purpose of these CoreLabs is research and development of innovative energy materials.

- **Corelab Energy Materials in-situ Laboratory Berlin (EMIL)** ✓
- **X-Ray CoreLab** ✓
- **Corelab Correlative Microscopy and Spectroskopy (CCMS)** ✓
- **Hybrid Silicon Perovskite Research, Integration & Novel Technologies (HySPRINT)** ✓
- **PVcomB** ✓
- **CoreLab for Quantum materials** ✓

http://www.helmholtz-berlin.de/quellen/corelabs/index_en.html




Beamtime Campaign Map



SOPs (standard operation procedures) developed for all steps (17)

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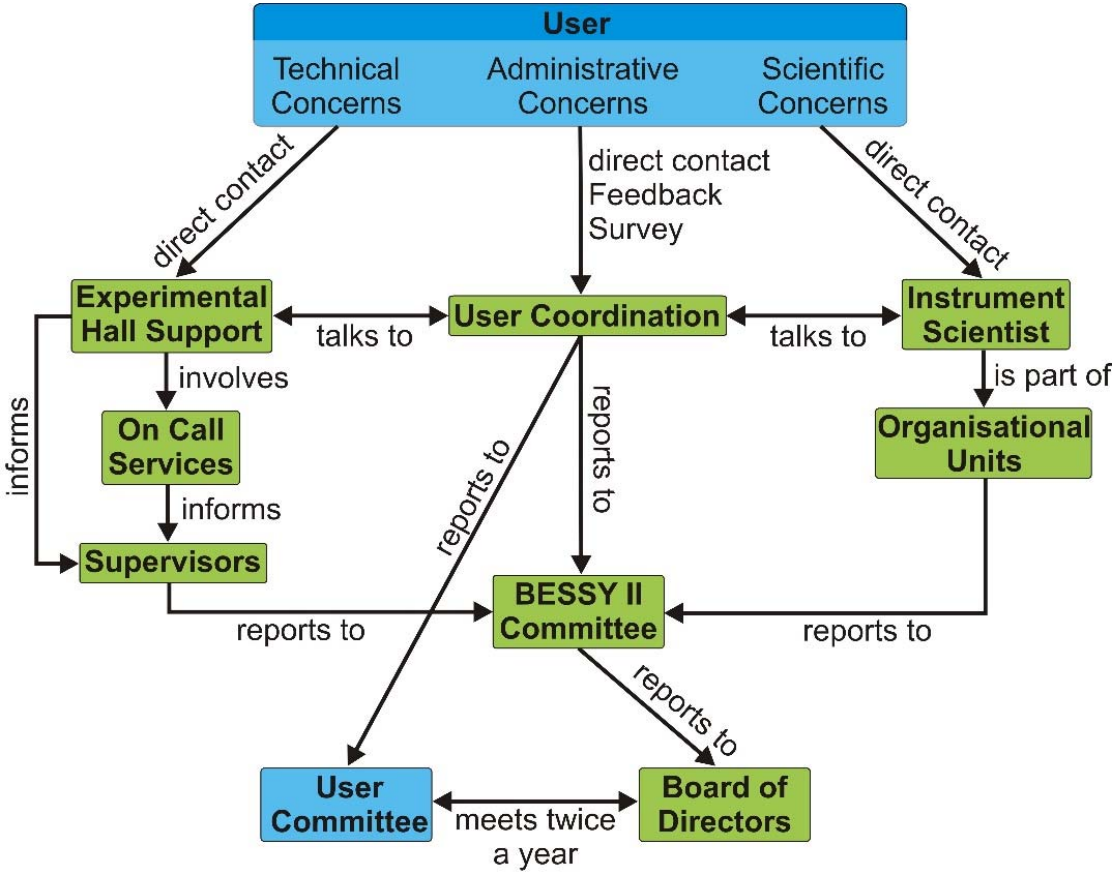
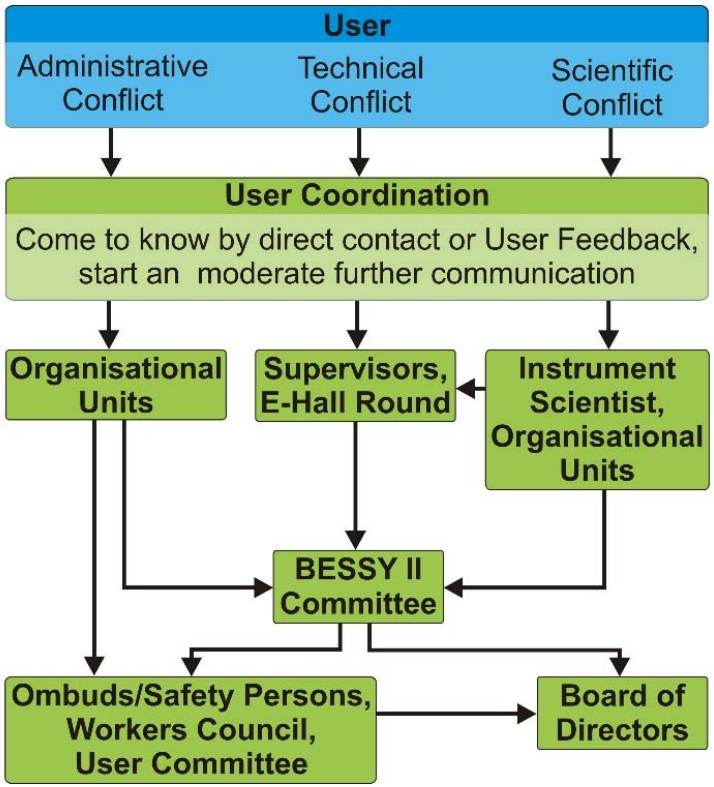
Visualisation of accepted procedures, structures, systems and reports





Definition of quality goals –key performance indicators

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Goals

Provision of Large Scale Facilities for an International Community

Scientific Output (O)	Outstanding Infrastructure (I)	High User Satisfaction (S)	Creation of Demand (D)	State of the Art Technology

Key Figures

O1 Beamtime per Publication [1]	**I1** Threshold Rate [2,3]	**S1** Recommendation Rate [2]	**D1** Number of New Departments [1]
O2 Publications multi-plied by Impact Faktor [1]	**I2** Satisfaction with Infrastructure [1]	**S2** Satisfaction with Administration [2]	**D2** Overbooking [1]
O3 Number of Theses [1]	**I3** Down Times/ Reliability Rate [1]	**S3** Allocation Transparency [2]	**D3-5** Institutes (EU, non-EU, De) [1]
O4 Citation Rate [1]	**I4** Beamshutter Opening Time [3]	**S4** Comparison with Other Facilities [2]	**D6** Departments [1]
		S5 Satisfaction with Beamtime [1]	**D7** Fields of Work According to DFG [2]
		S6 Publication Rate with HZB Co-Authors [1]	**D8** Number of Proposals [2]

1 BESSY II Beamline Station

2 BESSY II

3 Beamline

Quality Management Report I

O: Scientific Output		
O1 Beamtime (Shifts≙8 hours) per Publication	21.7	
O2 Publications multiplied by Impact Factor	2381	
O3 Number of Theses	14	
O4 Citation Rate for Publications from 2013	12,8	
Publications	519	

I: Outstanding Infrastructure		
I1 Threshold Rate (external/internal)	6.1/5.7	
I2 Satisfaction with Infrastructure	91% (1.92)	very good
I3 Down Times / Reliability Rate	98%	excellent
I4 Beamshutter Opening Time	-	not suitable

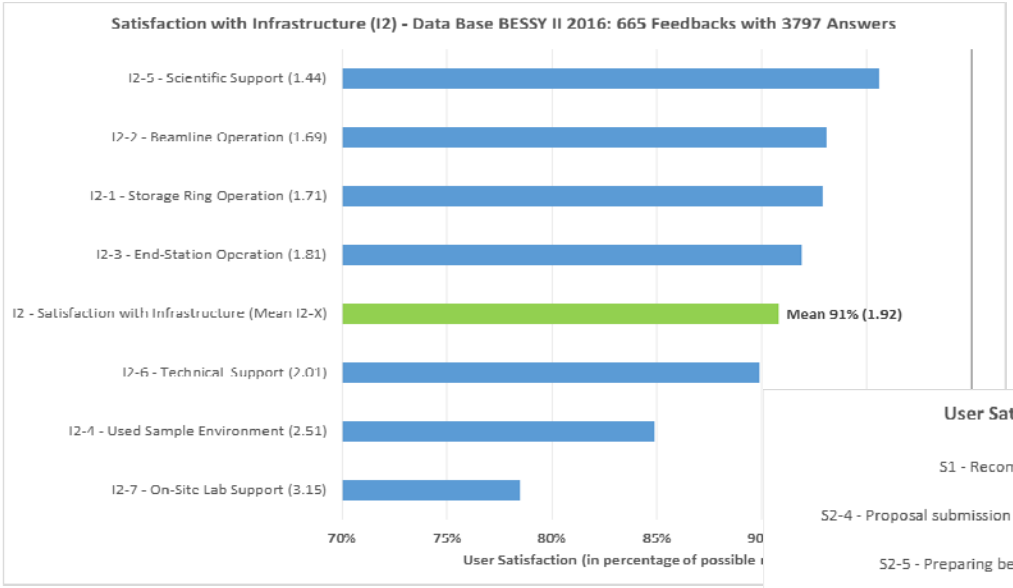
S: High User Satisfaction		
S1 Recommendation Rate	94% (1.62)	very good
S2 Satisfaction with Administration	92% (1.84)	very good
S3 Allocation Transparency	90% (2.02)	very good
S4 Comparison with Other Facilities	91% (1.92)	very good
S5 Satisfaction with Beamtime	91% (1.94)	very good
S6 Publication Rate with HZB Co-Authors	0,33	

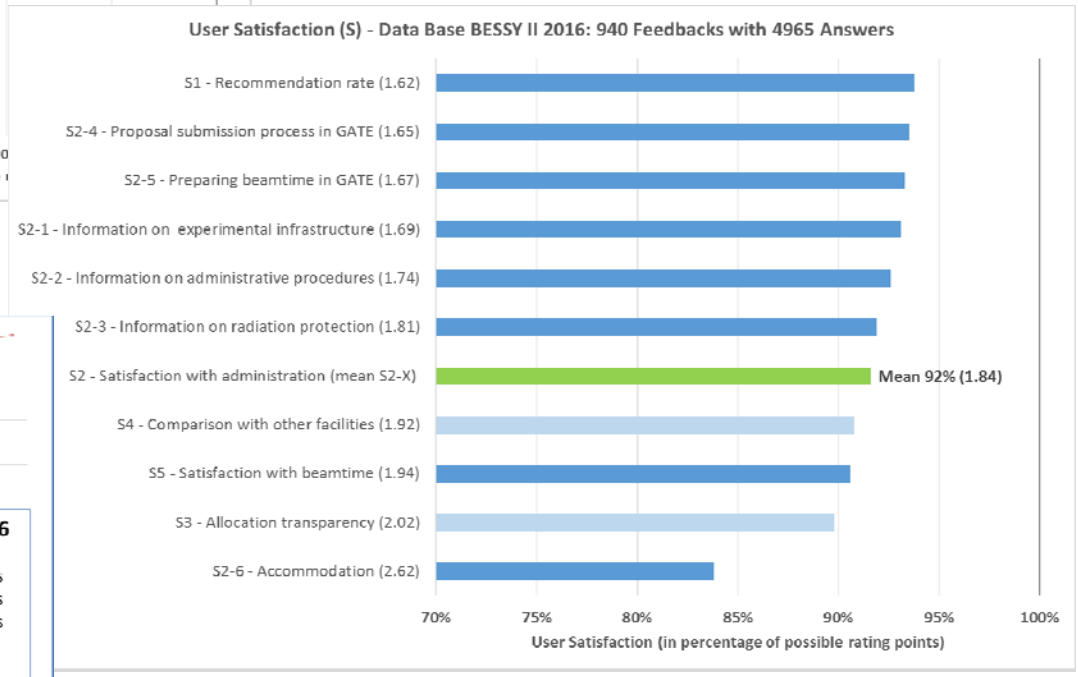
D: Creation of Demand	
D1 Number of New Departments	146
D2 Overbooking	+180% (1.80)
D3 EU-Institutes (accepted)	132
D4 Non-EU Institutes (accepted)	58
D5 German Institutes (accepted)	96
D6 Departments (altogether)	409
D7 Fields of Work According to DFG	yes
D8 Number of Proposals (submitted)	1195

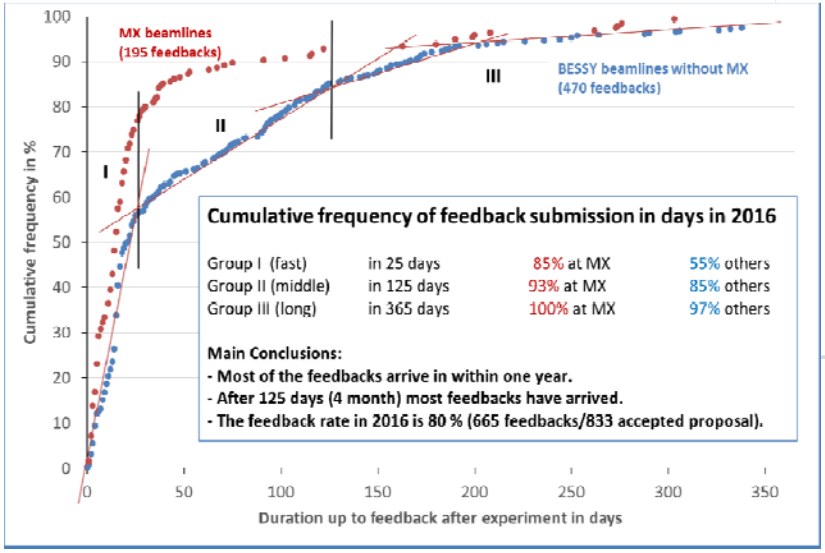
Rating Scale

Points	Percentage	Text	Range	NPS
1	100%	Excellent	<1.5	Promotor
2	90%	Very good	1.5-2.49	Promotor
3	80%	Good	2.5-3.49	Passive
4	70%	Above medium	3.5-4.49	Passive
5	60%	Upper medium	4.5-5.49	neutral
6	50%	Lower medium	5.5-6.49	Detractor
7	40%	Below medium	6.5-7.49	Detractor
8	30%	Poor	7.5-8.49	Detractor
9	20%	Very poor	8.5-9.49	Detractor
10	10%	worst	>9.5	Detractor

Quality Management Report II







Extension of Quality Management: ISO 9001:2015
Process Approach

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Process Map of User Coordination (NP-ACO) at HZB

Feedback I

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Beamtime feedback (CONFIDENTIAL) **16204037-ST-1.1-P**

Experiment title: Magnetic microstructure of Nd-Fe-B sintered magnets: role of Nd-rich grain-boundary layers

Beamline	Date of experiment	Local contact
UE49_PGM SPEEM	[redacted]	Florian Kronast

Principal Proposer: [redacted] Exp. Team:

I certify that the beam time has been devoted to the above named project yes

If no, comment:

1. Administrative feedback	Rating*	Comment
1.1 Information on experimental infrastructure	1	
1.2 Information on and handling of administrative procedures	1	
1.3 Information on and handling of radiation protection	1	
1.4 Proposal submission process in GATE	1	
1.5 Preparing beamtime in GATE	1	
1.6 Accommodation	3	Blinds that block the light completely would be really appreciated, it's very hard to sleep during the day
1.7 General comments and suggestions for improvement:	I believe that the whole process works really well, I have just two comments for the case of night shifts: - blinds that completely block the ligtht are essential to sleep during the day - ear plugs and sleep masks should be available, since they are hard to find (specially the sleep masks).	

2. Technical feedback	Rating*	Comment
2.1 Did you experience unexpected down-times without light?		no
2.2 Please specify the down-times reason:		
2.3 Storage ring operation	1	
2.4 Beamline operation	1	It's an excellent beamline, very stable!
2.5 End-station operation	1	Excellent endstation operation, quite robust, "user proof", we would like to acknowledge the quality of the software
2.6 Used sample environment (Gloveboxes□)	does not apply	
2.7 Scientific support (local contact)	1	We are really grateful to the local contact and the post-doc of the beamline, they have been really supportive and helpful
2.8 Technical support (gases, workshop, on-call service (Hallendienst))	does not apply	
2.9 On-site lab support	does not apply	
2.10 Please specify the lab used:		

2.11 General comments and suggestions for improvement:	We feel that we did not use very efficiently the time due to the night shift operation. It should be say that we were first time users in the beamline, and we had excellent support from the local contact up until 11 pm (as this is the norm). The rest of the night we were on our own, thus in case of minor technical issues or doubts we could not make the right decision until the day shift. Additionally we would like to stress that due the the nature of the experiment/end-station operation it requires full scientist attention during the whole shift, the sleep deprivation (change of sleep/cyrcadian rythms) reduces a lot working efficiency. This is critical in the case of first time users, it would not be as important if you already had already experienced. We would not recommend this in the future as it affects the efficiency of the beamtime use as a whole.

3. Summary	Rating*	Comment
3.1 Did the beamtime meet your scientific expectations?	2	Although we were able to meet most of the goals stated in the proposal, we might not have the completed experimental data to perform spectroscopy and composition analysis due to the facts mentioned above in general comments section.
3.2 Does the service provided by the corresponding instrument scientist(s) justify his/their coauthorship in a potential publication according to the HZB rules/DFG-rules of publication?		yes
3.3 How would you generally recommend the HZB facility BESSY II to others?	1	

Documented reaction to every negative feedback or criticism by the user coordination.

Discussion with the user and the beamline scientist

Feedback Reaction Scheme

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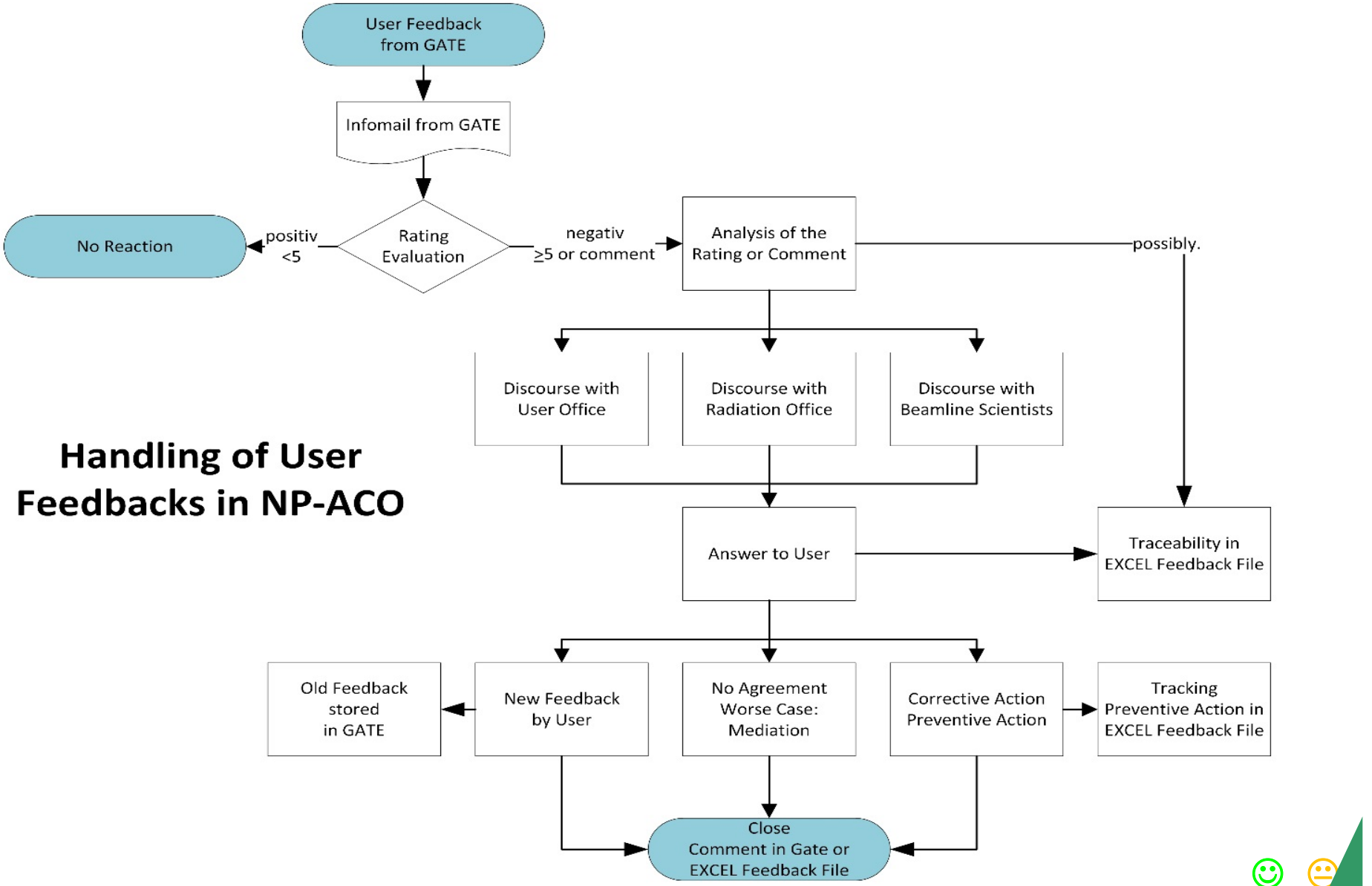
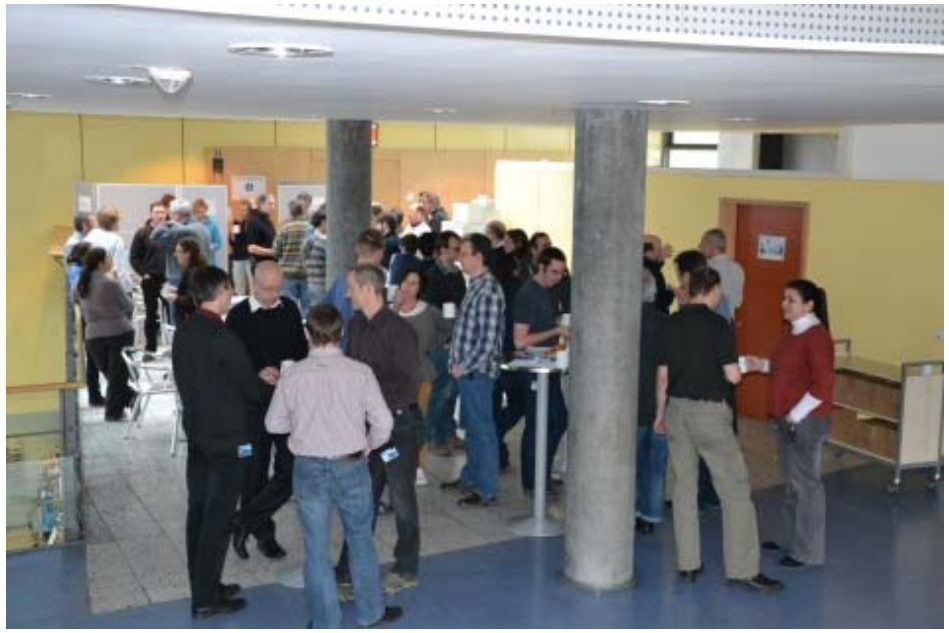


Handling of User Feedbacks in NP-ACO

Feedback II



Feedbacks

14100402-EF-1.1-P

Termin: 21.04.2014 – 27.04.2014
Beamline: KMC-2 / KMC-2 XANES
feedback from Maria Brzhezinskaya

Feedback	
Was the user group resonable experienced in the safe handling of the experiment?	yes
Did the user group provide sufficient qualifies manpower to conduct the experiment?	yes
Amount of allocated beamtime used?	1 weeks
Loss of allocated beamtime?	0 weeks
Was the allocated beamtime sufficient qualified for the requirements of the user group?	yes
Does the service ptovieded by the corresponding instrument scientist(s) justify his/their co-authorship in a potential publication by the users according to the HZB rules/DFG-rules of publication?	no

Scientist feedback

QUESTIONNAIRE

To improve our user support your opinion and evaluation of our work is very important to us!

In addition to the feedback and beamtime report we would like to ask you today for a rather informal feedback, for ideas, suggestions, criticisms, and (positive) comments.

Of course you can participate anonymously.

Your Ideas:

Your Suggestions:

Your Criticisms:

Your Comments:

Your overall impression:

Would you recommend the use of BESSY II to a colleague or friend?

Not at all 0 1 2 3 4 5 6 7 8 9 10 absolutely yes!

Why?

If you like, tell us your name and/or your experiment

Thanks a lot! Your help is very much appreciated!

Feedback IV - Publications

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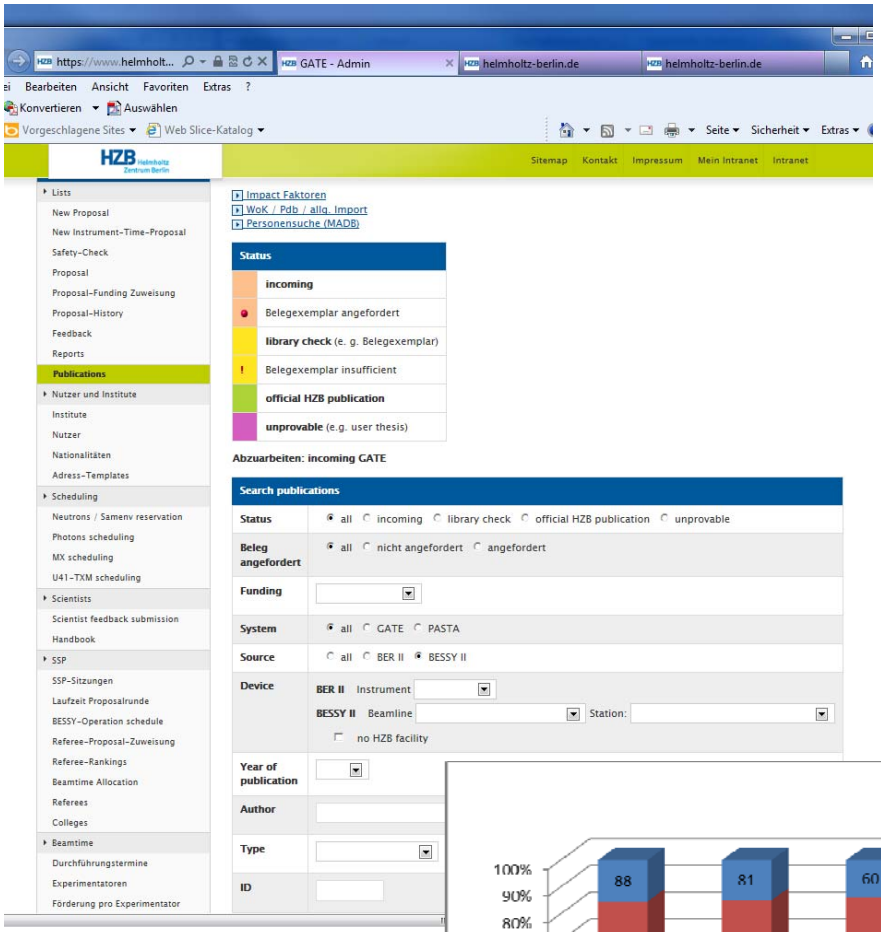
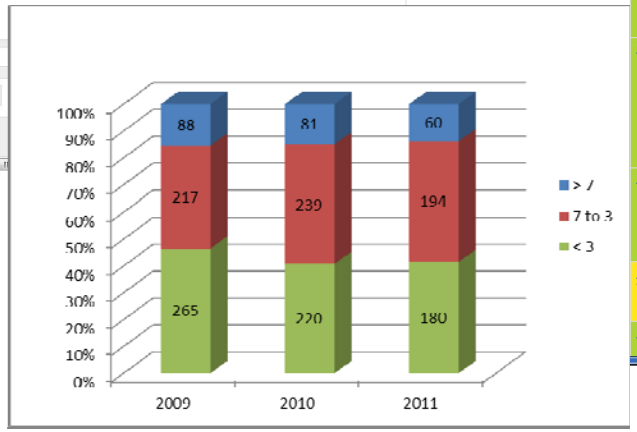
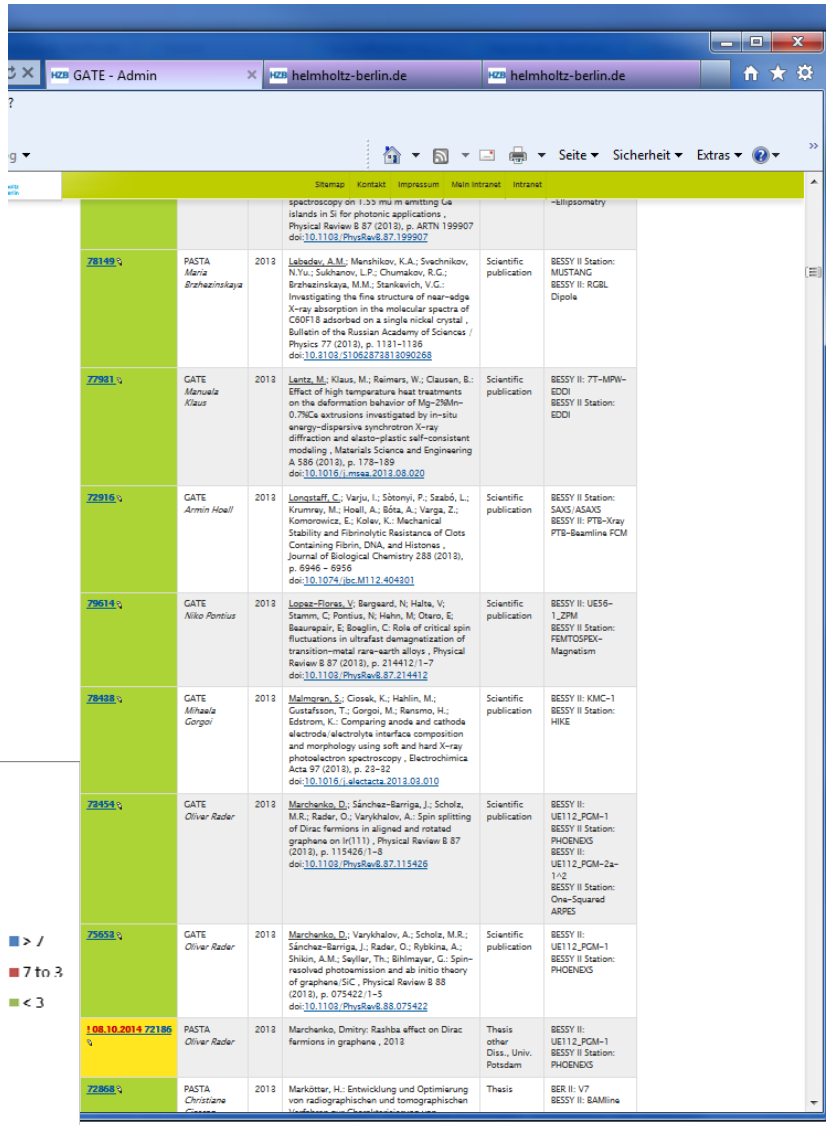






Communication with our Users I

HZB Helmholtz Zentrum Berlin

Conferences, User Meetings, Synergy Newsletter, BESSY II coffee, Foresight Workshops

In the framework of a series of foresight workshops, HZB wishes to establish a discussion of **future projects** and **research activities** in strong interaction with current and future **users from universities, research institutes and industry**. Aim of the dialogue is to discuss **future scientific fields** and **expectations**, needs and requirements for **cutting edge science with synchrotron radiation.**

Tender X-Rays	Imaging	Pico-to-femto	Tender X-Rays in	THz to Soft X-rays	Energy Material Science
85 participants	130 participants	173 participants	MX, 80 participants	175 participants	245 participants

Until now: more than 850 participants altogether

Communication with our Users I

HZB Helmholtz Zentrum Berlin

Although the workshops address different scientific communities, several requirements and ideas seem to be interdisciplinary and concerted.

All communities strongly support the idea of BESSY VSR.

Variable focus.

Versatile sample environment and off-line tools.

In situ and operando conditions as well as transfer equipment from suppo

Online data analysis, p
support in data evaluat

Energy Materials Research workshop	
Storage Ring	- time resolution and variable bunch length (VSR) - low and variable flux
Beamline and Optics	- Combination of Soft and Tender X-rays - Special resolution - Tunable flux to prevent beam damage
Endstation	- More efficient and faster detectors to prevent beam damage - In situ options for solvent based experiments - flexible and mobile preparation chambers
Sample Environment	- Extended sample environment - Electrochemistry equipment - Preparation and characterization tools and laboratories - Microscopes (SEM, AFM…) - More and better equipped chemistry labs - Complementary and supplementary characterization options
Other	- experienced (method oriented) beamline scientists, remote access

Communication with our Users II

HZB Helmholtz Zentrum Berlin

Informal Coffee and series of talks “What can we do for you” - Scientific Service for Users

BESSY II coffee

HZB Helmholtz Zentrum Berlin

Friday, 14.10.2016

Please join us for coffee, snacks and discussion at 2:30 pm in front of the control room

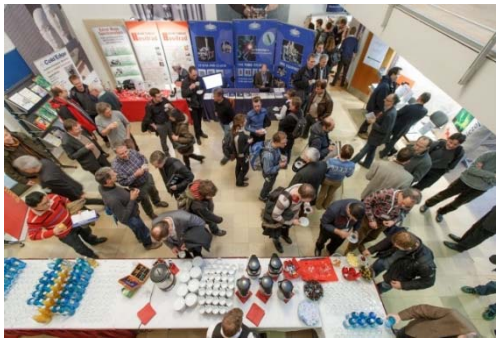
What can we do for you? This time: Sample Environment at BESSY II
Presentation, questions and answers
Klaus Kiefer and the sample environment team
2pm, room 3303 “Aquarium”

Do you have any questions?
Please come by for information and discussion

Communication with our Users III

Next user meetings:

13.-15. December 2017
5.-7. December 2018



Average numbers: 500 participants, 170 posters, 50 vendors

Thank you for your attention