

European User Office Meeting

HZB Helmholtz
Zentrum Berlin

Lund, October 2017



Quality Management at BESSY II

Antje Vollmer

Outline

Introduction – a few numbers, facts, and developments

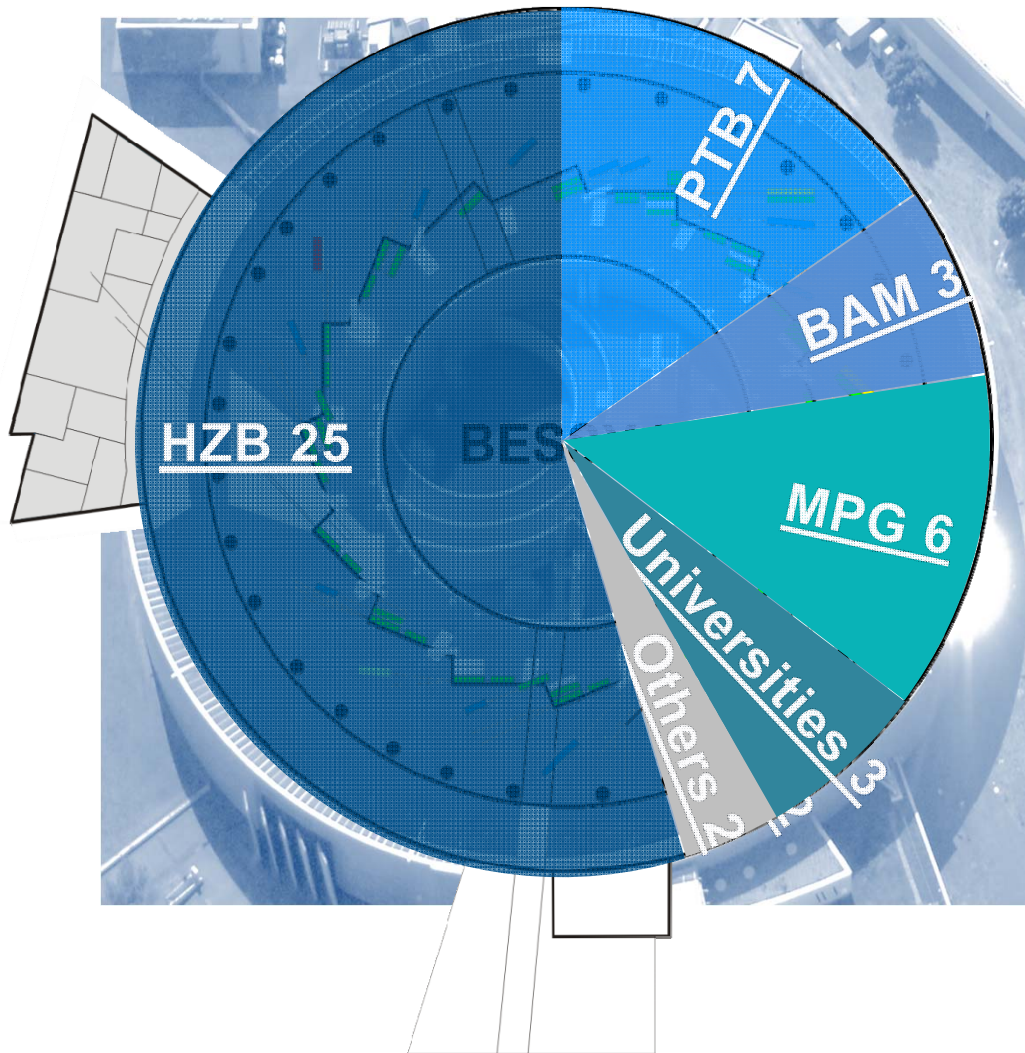
Quality Management

Feedback schemes and feedback handling

Communication with users

New users and communities - CALIPSOplus





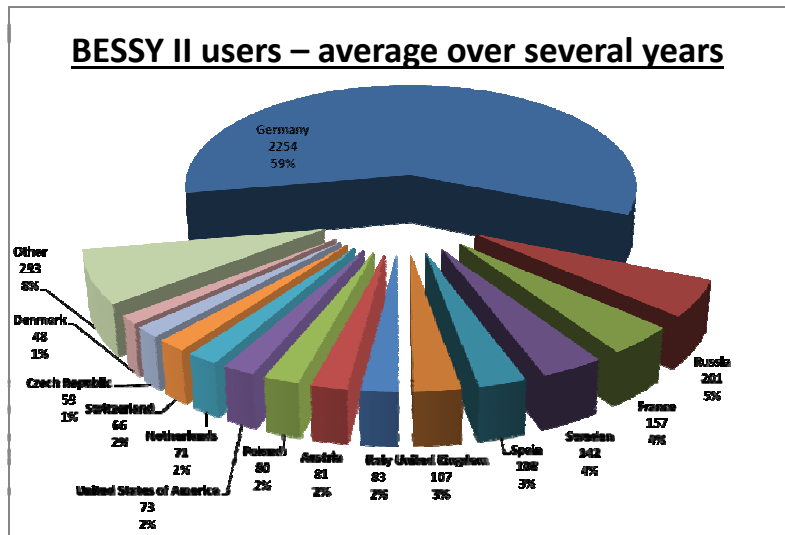
Beamlines:

- 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 from THz to hard X-rays

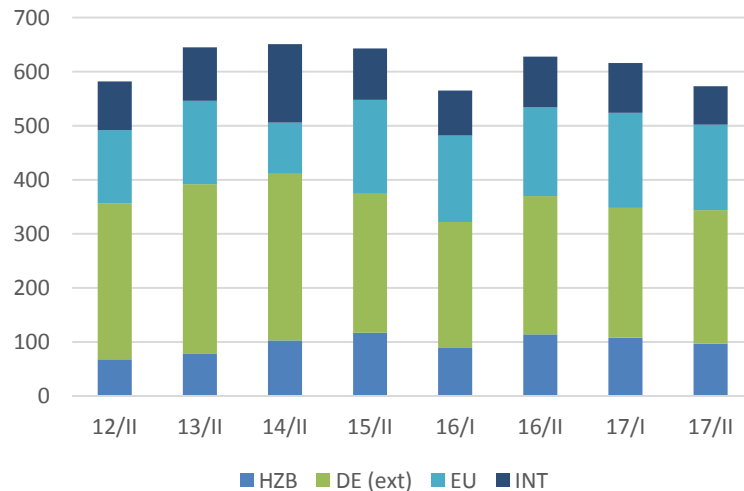
Our Users and their Proposals



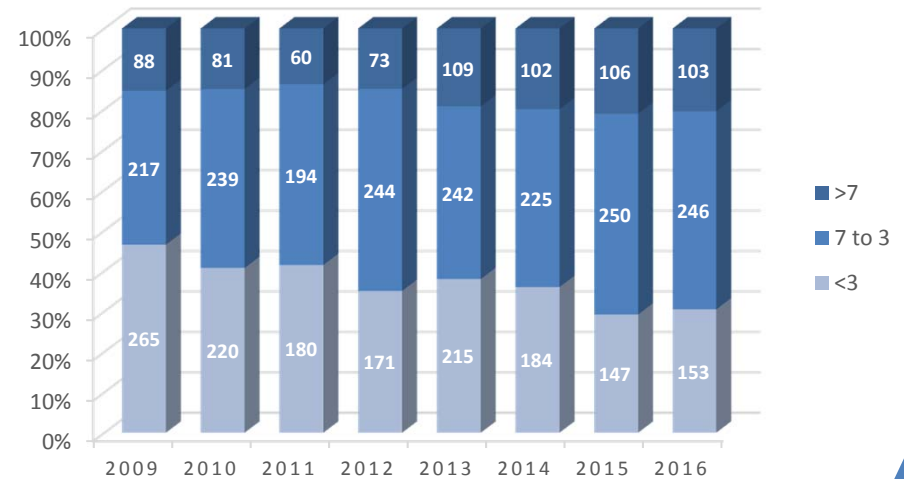
Average numbers:

- More than 1200 proposals per year
- About 800 beamtime campaigns
- 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



More than large scale facilities – the CoreLabs@HZB

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.

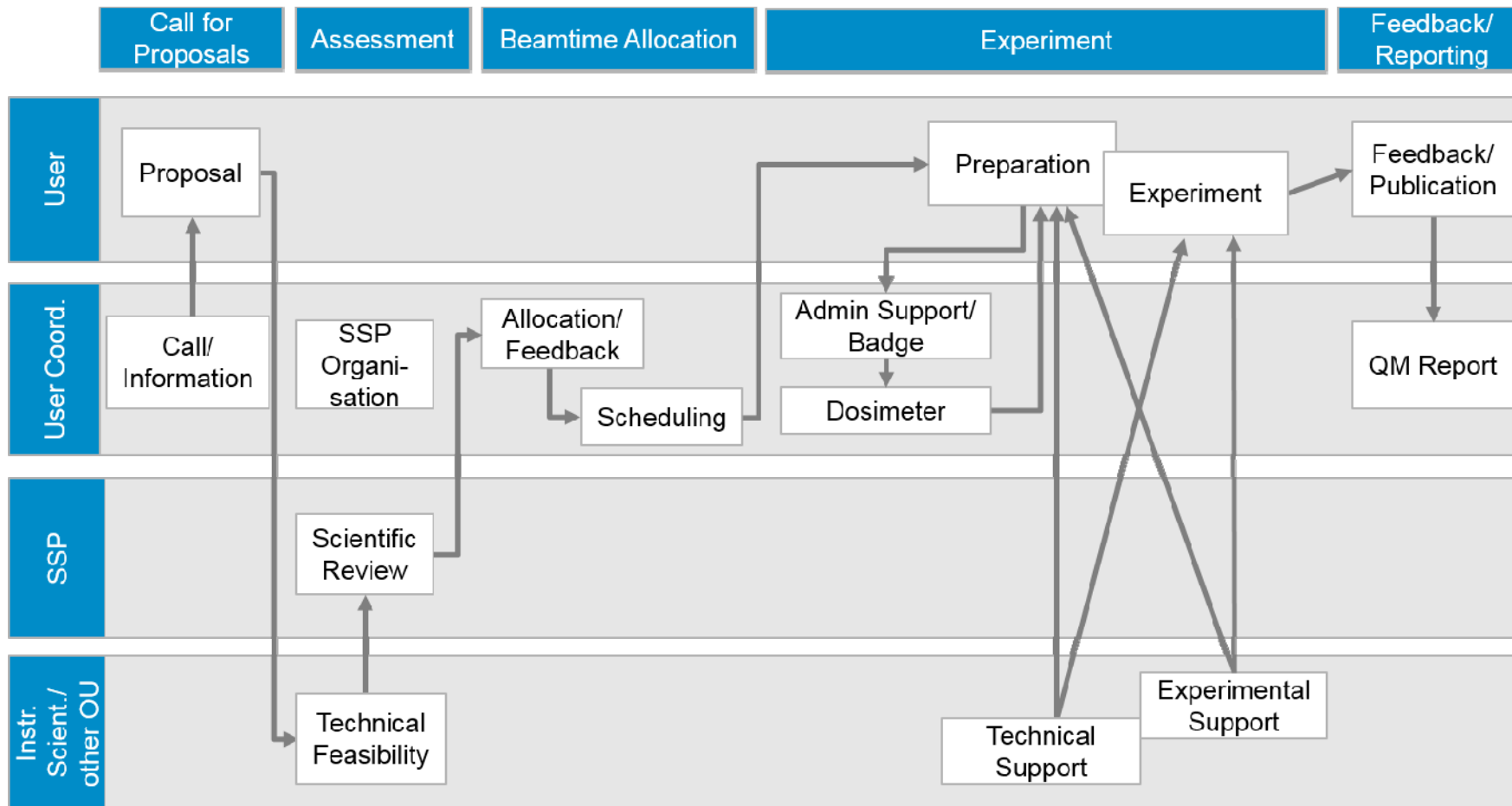
- Corelab Energy Materials in-situ Laboratory Berlin (EMIL)
- X-Ray CoreLab
- Corelab Correlative Microscopy and Spectroscopy (CCMS)
- Hybrid Silicon Perovskite Research, Integration & Novel Technologies (HySPRINT)
- PVcomB
- CoreLab for Quantum materials



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



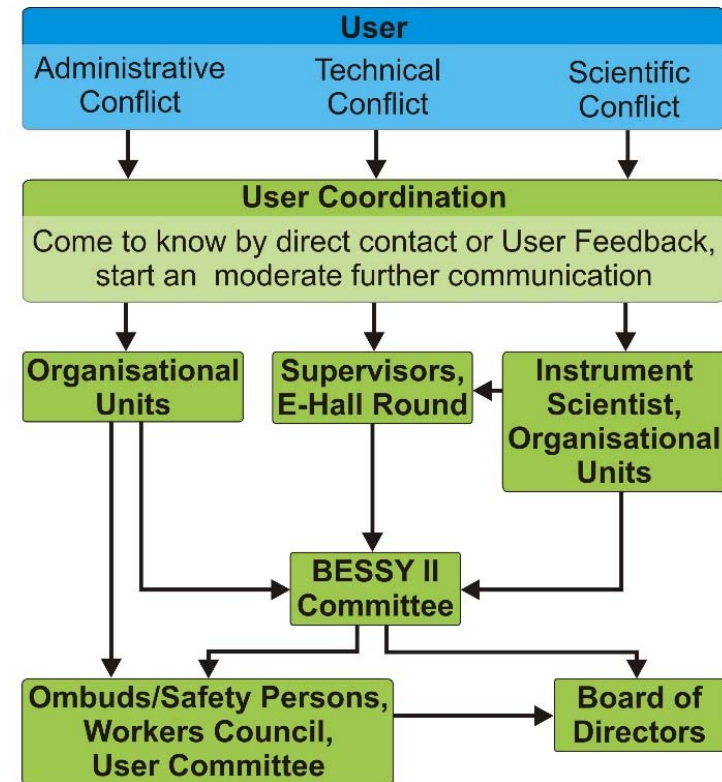
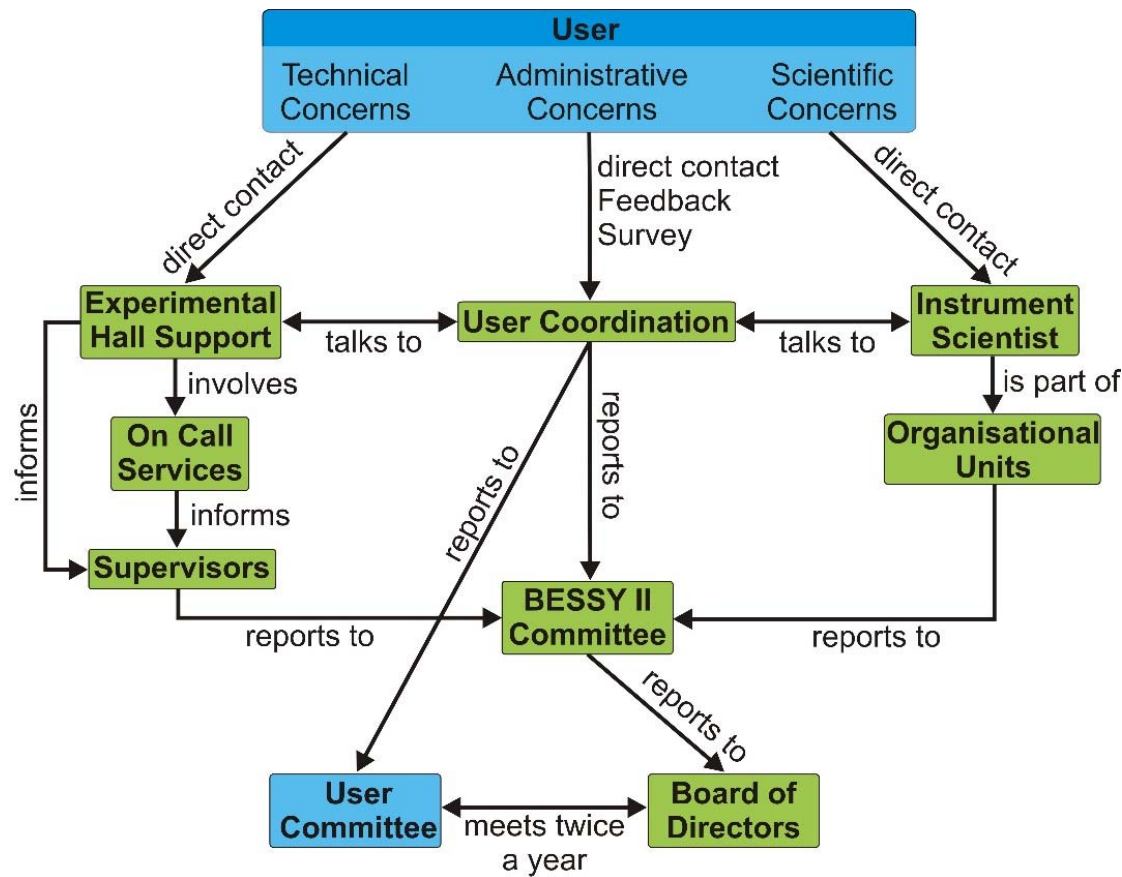
Beamtime Campaign Map



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



Visualisation of accepted procedures, structures, systems and reports



Definition of quality goals –key performance indicators

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
Publication¹

O2 Publications multi-
plied by Impact Faktor¹

O3 Number of Theses¹

O4 Citation Rate¹

I1 Threshold Rate^{2,3}

I2 Satisfaction with
Infrastructure¹

I3 Down Times/
Reliability Rate¹

I4 Beamshutter
Opening Time³

S1 Recommendation
Rate²

S2 Satisfaction with
Administration²

S3 Allocation
Transparency²

S4 Comparison with
Other Facilities²

S5 Satisfaction with
Beamtime¹

S6 Publication Rate
with HZB Co-Authors¹

D1 Number of New
Departments¹

D2 Overbooking¹

D3-5 Institutes
(EU, non-EU, De)¹

D6 Departments¹

D7 Fields of Work
According to DFG²

D8 Number of
Proposals²

1 BESSY II
Beamline
Station

2 BESSY II

3 Beamline

Quality Management Report I

O: Scientific Output		
O1 Beamtime (Shifts \triangleq 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 Publications	12,8	
	519	

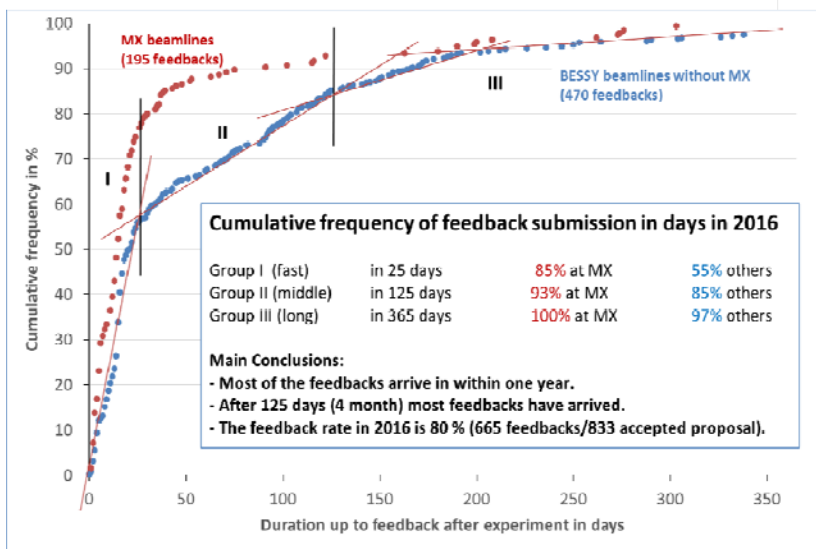
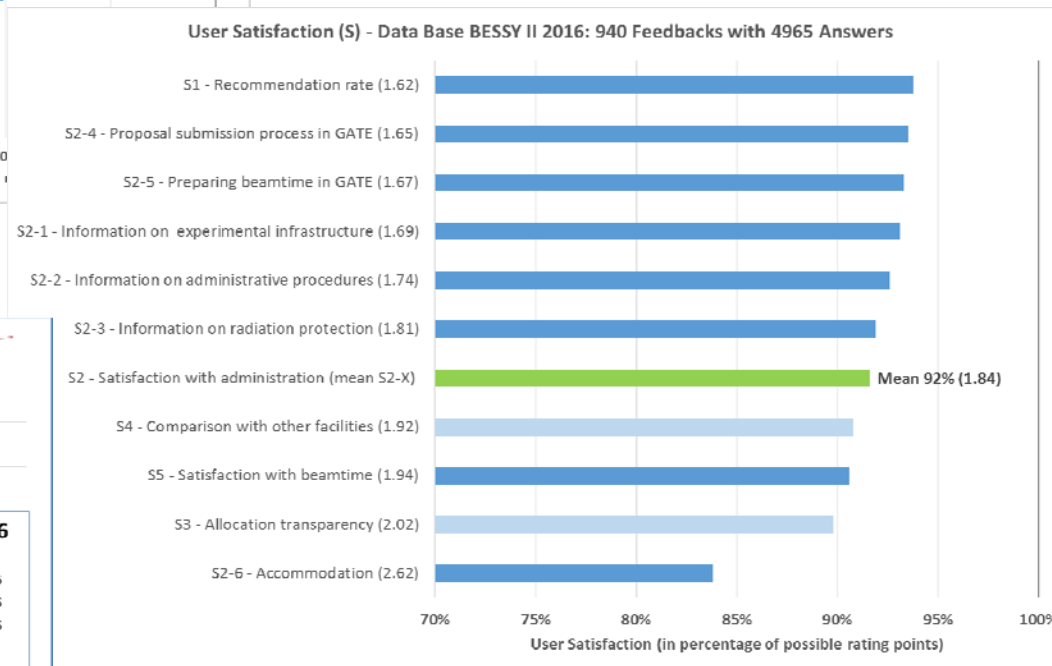
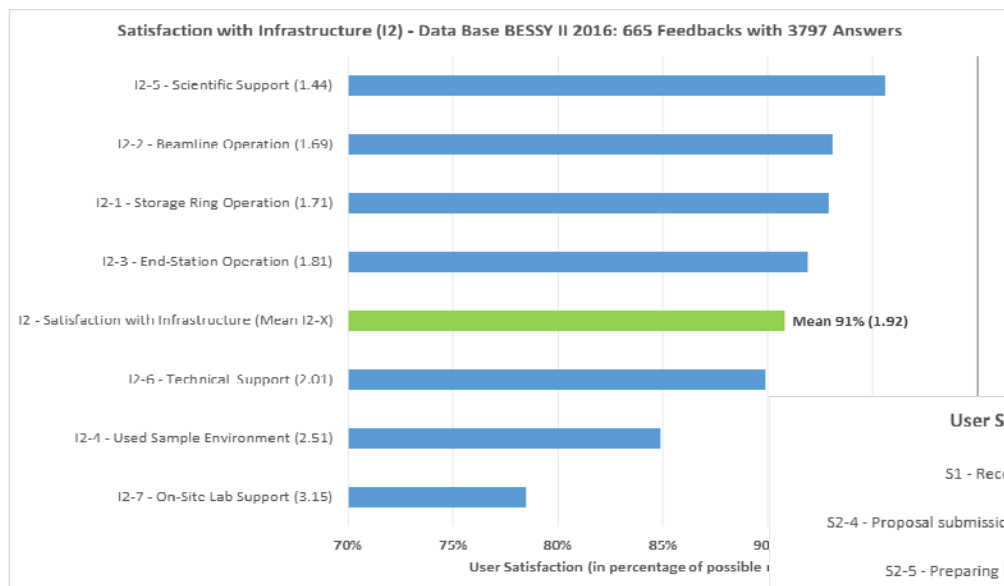
I: Outstanding Infrastructure		
I1 Threshold Rate (external/internal)	6.1/5.7	
I2 Satisfaction with Infrastructure	91% (1.92)	very good
I3 Down Times / Reliability Rate	98%	excellent
I4 Beamshutter Opening Time	-	not suitable

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

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



Feedback I

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: UE49_PGM SPEEM Date of experiment: Local contact: Florian Kronast

Principal Proposer: Exe. 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 light 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 said 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 to the nature of the experiment/end-station operation it requires full scientist attention during the whole shift, the sleep deprivation (change of sleep/circadian rhythms) 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/her 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	

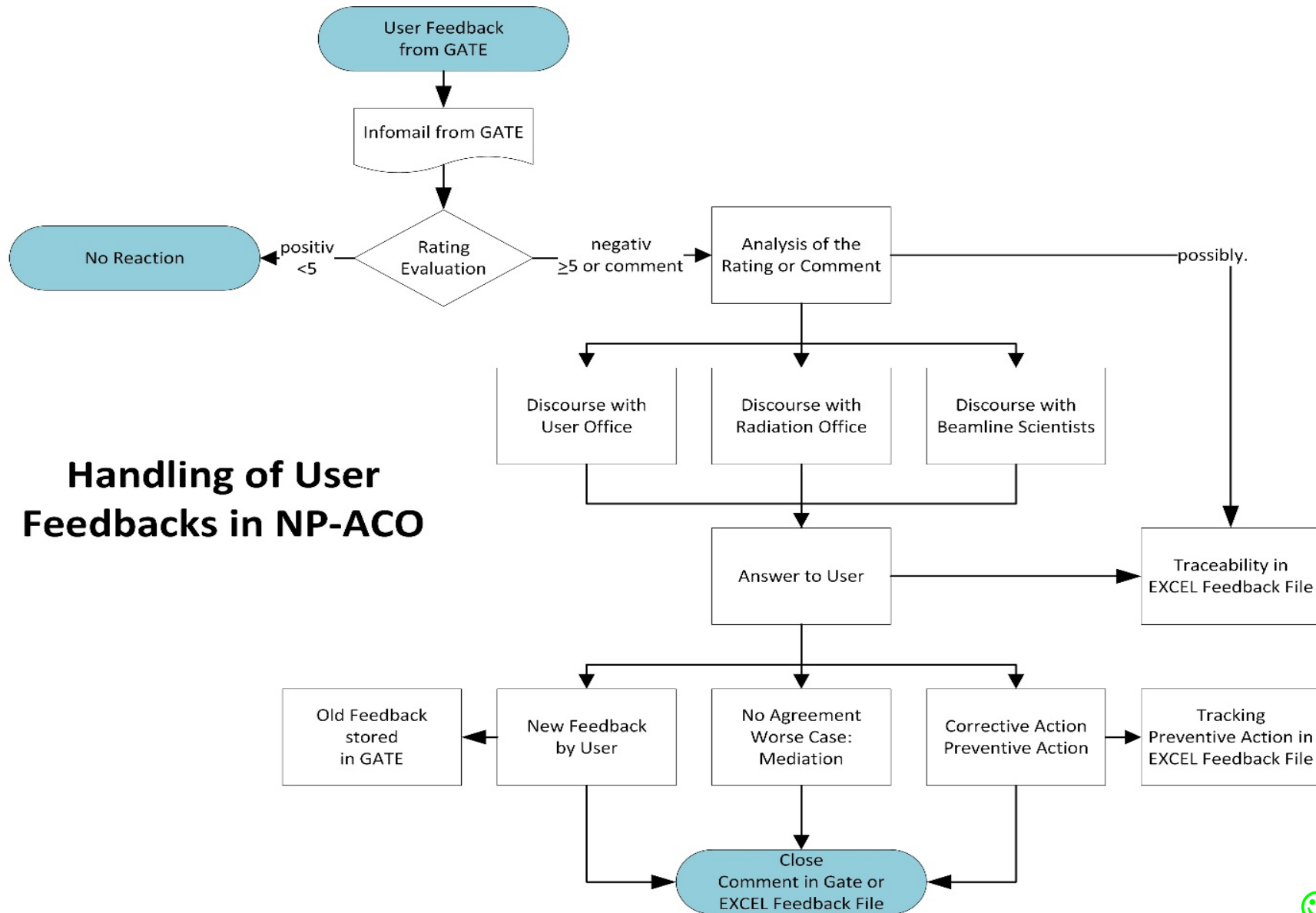


Documented reaction to every negative feedback or criticism by the user coordination.

Discussion with the user and the beamline scientist



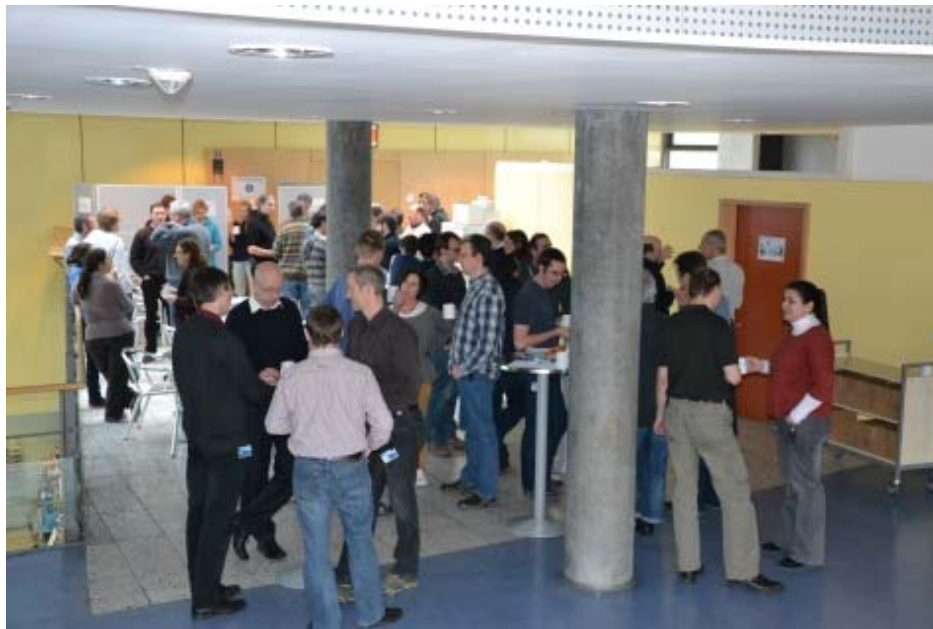
Feedback Reaction Scheme



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 reasonable experienced in the safe handling of the experiment?	yes
Did the user group provide sufficient qualified 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 provided 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!

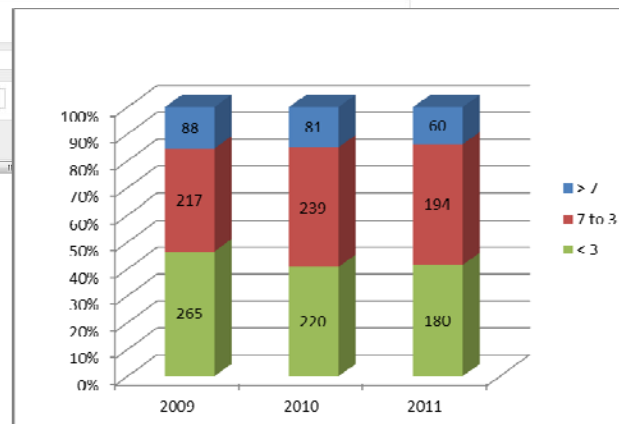


Feedback IV - Publications

The screenshot shows the HZB GATE Admin interface. On the left is a sidebar menu with categories like 'Lists', 'Scheduling', 'Scientists', and 'SSP'. The main content area is titled 'Status' and includes a legend for publication statuses: 'incoming', 'Belegexemplar angefordert', 'library check (e. g. Belegexemplar)', 'Belegexemplar insufficient', 'official HZB publication', and 'unprovable (e.g. user thesis)'. Below this is a 'Search publications' form with filters for 'Status', 'Beleg angefordert', 'Funding', 'System', 'Source', 'Device', 'Year of publication', 'Author', and 'Type'.

The screenshot shows a list of publications in the HZB GATE Admin interface. The table has columns for ID, Author, Year, Title, Status, and Station. The entries include:

ID	Author	Year	Title	Status	Station
78149	PASTA Maria Brzhazinskaya	2010	Labedev, A.M.; Manshikov, K.A.; Svednikov, N.Yu.; Sukhanov, L.P.; Chumakov, R.G.; Brzhazinskaya, M.M.; Stankevich, V.G.: Investigating the fine structure of near-edge X-ray absorption in the molecular spectra of C60F18 adsorbed on a single nickel crystal, Bulletin of the Russian Academy of Sciences / Physics 77 (2013), p. 1123-1126 doi:10.8103/S106878318090268	Scientific publication	BESSY II Station: MUSTANG BESSY II: RGBL Dipole
77981	GATE Manuela Klaus	2010	Lenta, M.; Klaus, M.; Reimers, W.; Clausen, B.: Effect of high temperature heat treatments on the deformation behavior of Mg-29Mn-0.7%Ca extrusions investigated by in-situ energy-dispersive synchrotron X-ray diffraction and elasto-plastic self-consistent modeling, Materials Science and Engineering A 586 (2013), p. 178-189 doi:10.1016/j.msea.2013.08.020	Scientific publication	BESSY II: 7T-MPW-EDDI BESSY II Station: EDDI
72916	GATE Armin Hoell	2010	Longstaff, C.; Varju, I.; Sötönyi, P.; Szabó, L.; Krumrey, M.; Hoell, A.; Bóta, A.; Varga, Z.; Komorowicz, E.; Kolev, K.: Mechanical Stability and Fibrinolytic Resistance of Clots Containing Fibrin, DNA, and Histones, Journal of Biological Chemistry 288 (2013), p. 6946 - 6956 doi:10.1074/jbc.M112.404301	Scientific publication	BESSY II Station: SAXS/ASAXS BESSY II: FTB-Xray FTB-Beamline FCM
79614	GATE Niko Pontius	2010	Lopez-Flores, V.; Berggaard, N.; Halta, V.; Stamm, C.; Pontius, N.; Hahn, M.; Otero, E.; Baumgart, E.; Boeglin, C.: Role of critical spin fluctuations in ultrafast demagnetization of transition-metal rare-earth alloys, Physical Review B 87 (2013), p. 214412/1-7 doi:10.1103/PhysRevB.87.214412	Scientific publication	BESSY II: UE36-1_2PM BESSY II Station: FEMTOSPDK-Magnetism
78488	GATE Michael Gorgol	2010	Malmgren, S.; Grosse, K.; Hahlin, M.; Gustafsson, T.; Gorgol, M.; Ranimo, H.; Edstrom, K.: Comparing anode and cathode electrode/electrolyte interface composition and morphology using soft and hard X-ray photoelectron spectroscopy, Electrochimica Acta 87 (2013), p. 23-32 doi:10.1016/j.electacta.2013.03.010	Scientific publication	BESSY II: KMC-1 BESSY II Station: HKE
73454	GATE Oliver Rader	2010	Marchenko, D.; Sánchez-Barriga, J.; Scholz, M.R.; Rader, O.; Varykhalov, A.: Spin splitting of Dirac fermions in aligned and rotated graphene in Ir(111), Physical Review B 87 (2013), p. 115426/1-5 doi:10.1103/PhysRevB.87.115426	Scientific publication	BESSY II: UE112_PCM-1 BESSY II Station: PHOENIX BESSY II: UE112_PCM-2a-1+2 BESSY II Station: One-Square ARPES
75853	GATE Oliver Rader	2010	Marchenko, D.; Varykhalov, A.; Scholz, M.R.; Sánchez-Barriga, J.; Rader, O.; Rybóna, A.; Shikin, A.M.; Seyller, Th.; Bihlmayer, C.: Spin-resolved photoemission and ab initio theory of graphene/SiC, Physical Review B 88 (2013), p. 073422/1-5 doi:10.1103/PhysRevB.88.073422	Scientific publication	BESSY II: UE112_PCM-1 BESSY II Station: PHOENIX
108.10.2014.72186	PASTA Oliver Rader	2010	Marchenko, Dmitry: Rashba effect on Dirac fermions in graphene, 2010	Thesis other Diss., Univ. Potsdam	BESSY II: UE112_PCM-1 BESSY II Station: PHOENIX
72868	PASTA Christiane Grosse	2010	Markötter, H.: Entwicklung und Optimierung von radiographischen und tomographischen Verfahren, 2010	Thesis	BER II: V7 BESSY II: BAMLine



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
85 participants

Imaging
130 participants

Pico-to-femto
173 participants

**Tender X-Rays in
MX**, 80 participants

THz to Soft X-rays
175 participants

Energy Material Science
245 participants

Until now: more than 850 participants altogether

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 support

Online data analysis, post
support in data evaluation



Energy Materials Research workshop	
Storage Ring	<ul style="list-style-type: none"> - time resolution and variable bunch length (VSR) - low and variable flux
Beamline and Optics	<ul style="list-style-type: none"> - Combination of Soft and Tender X-rays - Special resolution - Tunable flux to prevent beam damage
Endstation	<ul style="list-style-type: none"> - More efficient and faster detectors to prevent beam damage - In situ options for solvent based experiments - flexible and mobile preparation chambers
Sample Environment	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - experienced (method oriented) beamline scientists, remote access

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



Next user meetings:
13.-15. December 2017
5.-7. December 2018



Key Note Lecture:
Christof Wöll (KIT)

Public Lecture:
Christoph Lienau (Uni Oldenburg)

Invited talks:
Pal Stenamrk (Stockholm Univ.)
Florent Boudoire (EMPA)
Stefano Lupi (Universita Roma)
Kristina Edström (CNRS)
Rantej Bali (HZDR)
Paul Zaslansky (Charité)
Alexander Fedorov (IFW)
Michael Ramsey (Uni Graz)
Claus Czeslik (Uni Dortmund)
Robin Woracek (UT Knoxville)

- Neutron Instrumentation Day
- Science Day
- Synchrotron Instrumentation Day
- Vendor Exhibition
- Poster Session

Satellite Workshops:

- BESSY II Tender X-ray workshop (Dec.1-2)
- Advances in Macromolecular Crystallography (Dec. 3)

December 3 to 5, 2014
Lise-Meitner-Campus, Berlin-Wannsee and
Wilhelm-Conrad-Röntgen Campus, Berlin-Adlershof
and WISTA

https://www.helmholtz-berlin.de/user/usersmeetings/users-meeting-2014/index_en.html



Average numbers: 500 participants, 170 posters, 50 vendors





**Thank you for your
attention**

