

Shifting Gears in the Management of User Facilities

The proposal management systems at KNMF and at ANKA

ANKA SYNCHOTRON RADIATION FACILITY
KARLSRUHE NANO MICRO FACILITY (KNMF)



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Outline

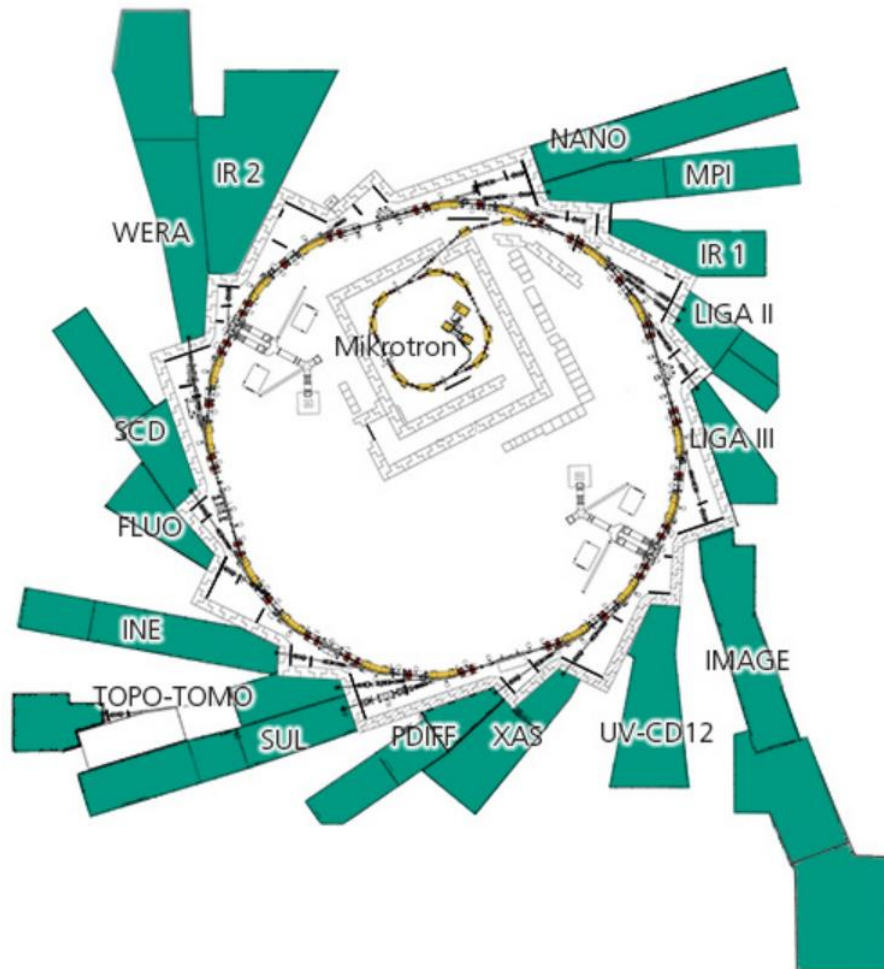
- ANKA and KNMF: two user facilities at KIT
- Stakeholders and system development
- Key figures, workflow and features
- Summary

ANKA and KNMF: two user facilities at KIT

- **ANKA** (Ängströmquelle Karlsruhe – Synchrotron Radiation Facility)
a unique combination of beamlines and labs for specific science fields
since March 2003
17 beamlines
www.anka.kit.edu
- **KNMF** (Karlsruhe Nano Micro Facility)
an open innovation user facility for structuring and characterization
on the micro and nano scale
since October 2008
22 technologies (+4 ANKA beamlines)
www.knmf.kit.edu
- Proposal-based access
- Process chains and combined ANKA/KNMF proposals
- Two large-scale infrastructures at one location



ANKA beamlines



THz/IR, UV & Soft X-ray Spectroscopy

[WERA](#)

[UV-CD12](#)

[IR 1](#)

[IR 2](#)

Hard X-ray Spectroscopy

[XAS](#)

[FLUO](#)

[SUL-X](#)

[INE](#)

X-ray Lithography

[LIGA I](#)

[LIGA II](#)

[LIGA III](#)

Hard X-ray Imaging

[IMAGE](#)

[TOPO-\(TOMO\)](#)

Hard X-Ray Scattering

[SCD](#)

[PDIFF](#)

[NANO](#)

[MPI](#)



Source:
www.anka.kit.edu/766.php

KNMF technologies

Laboratory for Micro- and Nanostructuring

- 3D Direct laser writing
- Deep X-ray lithography
- Dip-pen nanolithography
- Direct laser writing
- Dry etching cluster
- Electron beam lithography
- Focused ion beam
- Hot embossing
- Injection moulding
- Laser material processing
- Thin film technologies
- Atomic layer deposition / Pulsed laser deposition – from 2014/15
- Next generation X-ray lithography from 2014

Laboratory for Microscopy and Spectroscopy

- Atomic force microscopy
- Auger electron spectroscopy
- Bulk and trace analysis of nanomaterials
- Laser ablation ICPMS
- Single crystal X-ray diffraction
- Thin film characterisation methods
- Time-of-flight secondary ion mass spectrometry
- Transmission electron microscopy
- X-ray photoelectron spectroscopy
- Atom probe tomography from 2014
- Helium ion microscope – from 2014
- Matrix assisted laser desorption / ionisation TOF MS – from 2014

Laboratory for Synchrotron Characterisation

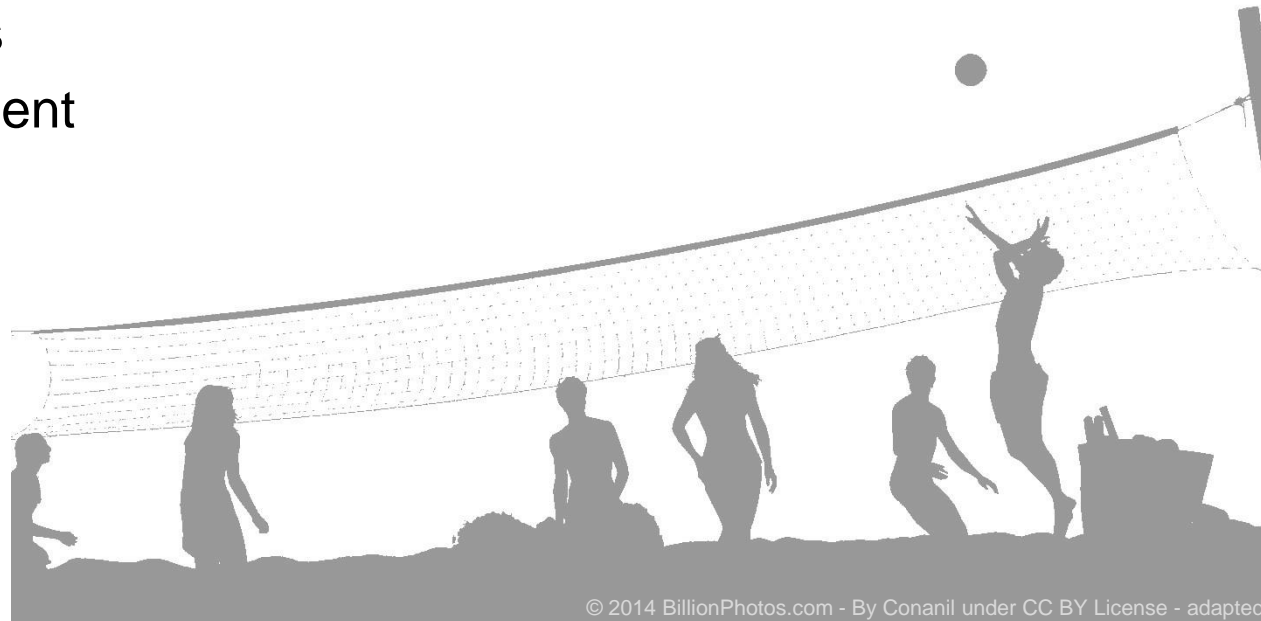
- Infrared/THz spectroscopy and ellipsometry
- Polycrystalline/powder diffraction
- Soft X-ray spectroscopy, microscopy, and spectromicroscopy
- X-ray absorption spectroscopy
- Infrared microscopy – from 2014
- X-ray microscopy and 3D tomographic imaging – from 2015
- In-situ X-ray scattering, diffraction, and reflection – from 2015
- IR near-field nanospectroscopy from 2015
- Soft and medium-energy X-ray spectroscopy (X-SPEC) – from 2015

Stakeholders and system development

Stakeholders

- Users
- (Beamline) scientists
- User Office
- Review panels
- Software developers
- Hardware management
- ...

It's a team approach!



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Stakeholders and system development

History of proposal management systems at ANKA and KNMF

- 199x Scientific Management Information System (*SMIS*) at ESRF
- 2003/04 *SMIS* adapted for ANKA
- 2008 *NAOMI* developed for KNMF
 based on *SMIS* core functionalities
- 2013 *ANNA* adapted for ANKA
 based on *NAOMI*

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Stakeholders and system development

Strategic aspects

- 90% identical code
10% adapted to individual needs/philosophy of ANKA/KNMF
- Improvements and new features can add to both systems
- Complexity requires professional approach → external partner
- Stakeholders contribute what they can do best → efficiency

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Key figures, workflow and features

ANNA & NAOMI system

- Web-Framework *Grails* based on *Groovy* and *Java*
Application size 75MB, Memory 1GB RAM
- Apache Tomcat Servlet Container
and Apache Webserver
- Data saved in SQL database(s) via JDBC
and in file system
- openSUSE-Linux 13.1



JDBC: Java Database Connectivity

- System development
and maintenance by



Softwareschneiderei

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Key figures, workflow and features

ANNA & NAOMI statistics (as of 24th October 2014)

- Two calls per year: 15th January and 30th June
Current calls: 25th (ANKA), 13th (KNMF)

■ Proposals*:	<i>ANKA</i>	<i>KNMF</i>
Submitted proposals	1473	618
Accepted proposals	922	473
■ Users:	<i>ANKA</i>	<i>KNMF</i>
Total user accounts	2256	1046
Active user accounts	1817	786
Users with proposals	684	511

- Find more statistics in the annual reports available online:
ANKA: www.anka.kit.edu/943.php
KNMF: www.knmf.kit.edu/annualreports.php

* *ANKA Call 5-24, KNMF Call 1-12, no proprietary and internal proposals*

Key figures, workflow and features

ANNA & NAOMI statistics (as of 24th October 2014)


■ Reports*:	<i>ANKA</i>	<i>KNMF</i>
User Reports	516	160
Status Reports	903	1839
■ Publications**:	<i>ANKA</i>	<i>KNMF</i>
Total publications	2021	584
Journals	1315	429

* *ANKA Call 5-24, KNMF Call 1-12*


** *ANKA Year 2003ff , KNMF Year 2008ff*

Key figures, workflow and features

Proposal submission system (KNMF)


Karlsruhe Institute of Technology

FACILITATING INNOVATION IN MICRO AND NANO TECHNOLOGIES



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KNMF Home

Profile

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Access

User Committee

User Login

KNMF Proposal Submission

Welcome to the KNMF proposal submission system!

To submit a proposal you have to signup first or to log in to the submission system with your user ID and password.

If you have already registered to the ANKA submission system please use the user ID and password that you have received from ANKA.

If you have forgotten your account please send a short note to the KNMF User Office.

Username

Password

Not a member? [Signup](#) for an account. Forgot your password? [Receive a new password](#).

Deadline: January 15, 2015

13th CALL OPEN

Contact (User Office)


Karlsruhe Nano Micro Facility
H.-von-Helmholtz-Platz 1
76344 Eggenstein-
Leopoldshafen, Germany

phone: +49(721)608-23123
fax: +49(721)608-26273
[knmf-useroffice@kit.edu](#)
[KNMF Profile](#) [User Office](#)

New Technologies Available

June 2014


3D Atom Probe Tomography (APT) and Helium Ion Microscope (HIM) are now available for proposals at KNMF. Check out the technologies and submit your KNMF proposal.





User Login at <http://knmf.kit.edu> → <https://proposal.knmf.kit.edu/ksp/>

Key figures, workflow and features

Proposal submission system (ANKA)


Karlsruhe Institute of Technology





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Username
Password
[Log In](#)

Not a member? [Signup](#) for an account. Forgot your password? [Receive a new password](#).

Attention: Arrival Form

Please be reminded to submit the arrival form using the [ANKA proposal submission system \(ANNA\)](#).

Schedule confirmations -> Submit Arrival Form

If you have questions please contact the [User Office](#).

User Corner

Deadline

Call for Proposals:
January 15th, 2015

Important Information

- [Way to KIT](#)
- [Way to ANKA](#)
- [ANKA User House](#)
- [Contact](#)

User Login at <http://anka.kit.edu> → <https://proposal.anka.kit.edu/anna/>

Key figures, workflow and features

ANNA & NAOMI workflow

- Submission
- (Feasibility) heck
- Review
- Decision of Acceptance
- Scheduling (ANKA only)
- Reporting
 - User: Interim/Final Report
 - Scientist: Status Report
- Publication
- Feedback (optional)

SEARCH

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- Your messages
- Show all users
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- Show all countries
- Show all journals
- Manage calls
- Edit account
- Change your password
- Logout

Logged in as schaller

(UserOffice)

(Scientist)

(User)

Status overview

st Submitted Call 8 Show

Please find below an overview of proposal status and phases. You may click the status icons to obtain additional information.

ID	Type	Title	Submission	Check	Review	Acceptance	Reporting	Publication	Actions
2012-008000878	st	Nanostructures characterization of a hybrid Janus molecule	OK	OK	OK	✓	→	→	
2012-008000885	st	Submicron structures for continuously tunable organic semiconductor lasers	OK	OK	OK	✓	→	→	
2012-008000895	st	Tailored crystallographic material states for the design of novel interfaces	OK	OK	OK	✓	→	→	
2012-008000900	st	The effect of capped silver nanoparticles on dissolution, toxicity, bactericidal and bioaccumulation: Comparative study using commonly used capped Ag NPs systems	OK	OK	OK	✗			
2012-008000903	st	Mechanical behavior and the elementary plasticity mechanisms in nc Al and Pd thin films	OK	OK	OK	✓	→	→	
2012-008000906	st	characterization of grain size and orientation in the early stages of the processing route of ODS steels	OK	OK	OK	✓	→	→	
2012-008000909	st	ASTAR analysis of the grain distribution of columnar grown AlN	OK	OK	OK	✓	→	→	
2012-008000915	st	Influence of laser pulse length on structural and chemical properties of composite electrode materials	OK	OK	OK	✓	→	→	

Key figures, workflow and features

User roles

- User Office
- Scientist
- User
- Reviewer

Menu items, data selection and action items are displayed depending on the user role.

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Status overview

st
 Submitted
 Call 8
 Show

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2012-00800878	st	Nanostructures characterization of a hybrid Janus molecule							
2012-00800885	st	Submicron structures for continuously tunable organic semiconductor lasers							
2012-00800895	st	Tailored crystallographic material states for the design of novel interfaces							
2012-00800900	st	The effect of capped silver nanoparticles on dissolution, toxicity, bactericidal and bioaccumulation: Comparative study using commonly used capped Ag NPs systems							
2012-00800903	st	Mechanical behavior and the elementary plasticity mechanisms in nc Al and Pd thin films							
2012-00800906	st	characterization of grain size and orientation in the early stages of the processing route of ODS steels							
2012-00800909	st	ASTAR analysis of the grain distribution of columnar grown AlN							
2012-00800915	st	Influence of laser pulse length on structural and chemical properties of composite electrode materials							

Key figures, workflow and features

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Logged in as schaller
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(User)

Status overview

st Submitted Call 8 Show

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2012-008000885	st	Submicron structures for continuously tunable organic semiconductor lasers							
2012-008000895	st	Tailored crystallographic material states for the design of novel interfaces							
2012-008000900	st	The effect of capped silver nanoparticles on dissolution, toxicity, bactericidal and bioaccumulation: Comparative study using commonly used capped Ag NPs systems							
2012-008000903	st	Mechanical behavior and the elementary plasticity mechanisms in nc Al and Pd thin films							
2012-008000906	st	characterization of grain size and orientation in the early stages of the processing route of ODS steels							
2012-008000909	st	ASTAR analysis of the grain distribution of columnar grown AlN							
2012-008000915	st	Influence of laser pulse length on structural and chemical properties of composite electrode materials							
2012-008000926	st	Investigation of nanodiamonds structure development during heating in transmission electron microscope							
2012-008000932	st	Use of TEM for investigation of structure of metal matrix composites with nanodiamond reinforcements							
2012-008000940	st	Bent source gratings for High Energy μXPCI (50keV)							
2012-008000960	st	DPN patterning of macrocycles derivatives and cyclic peptides materials for biosensing applications							

Key figures, workflow and features

User roles

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Logged in as schaller

(UserOffice)

(Scientist)

(User)

Status overview

Please find below an overview of proposal states and phases. You may click the status icons to obtain additional information.

ID	Type	Title	Submission	Check	Review	Acceptance	Reporting	Publication	Actions
2012-008 000896	st	Test proposal - please ignore							

- Legend:**
- Action completed
 - Needs action by you
 - Action overdue
 - Needs action by someone else
 - Accepted
 - Rejected
 - Undecided
 - KNMF not acknowledged
 - Insufficient
 - Show
 - Edit
 - Attach Experimental Description
 - Submit
 - Accept Participation
 - Reject Participation
 - Edit Interim Report
 - Edit Final Report
 - Publications
 - History
 - Feedback
 - st** Standard proposal (duration up to 6 months)
 - ft** Fast track proposal
 - lt** Long-term proposal (duration up to 2 years)
 - pr** Proprietary proposal
 - 3n** Third-party project, non-proprietary
 - 3p** Third-party project, proprietary
 - ih** Institute / HGF proposal

Key figures, workflow and features

ANNA scheduling

- Beamtime calendar
- Proposal scheduling
- User notification
- Machine & beamline modes
- Call statistics

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Beamtime scheduling

TOPO-TOMO ▾ Show

☒ Planned Machine Modes ☒ Achieved Machine Modes
☒ Planned Beamline Modes ☒ Achieved Beamline Modes
☒ Scheduled Projects

Statistics for Call 23: Machine UO (achieved/planned): 62/64 Beamline Mode UO (int./ext.): 0/42

Aug 2014

30 Sat

31 Sun

Sep 2014

01 Mon					
02 Tue	■ ■ ■	UO_E	UO_E	A2014-023-005421	x
03 Wed	■ ■ ■	UO_E	UO_E	DANILEWSKY, A.	
04 Thu	■ ■ ■	LoCo_E	LoCo_E	A2014-023-005461	x
05 Fri	■ ■ ■	LoCo_E	LoCo_E	MCNALLY, Patrick	
06 Sat	■ ■ ■	LoCo_E	LoCo_E		
07 Sun	■ ■ ■	BL_NO	BL_NO		
08 Mon	■ ■ ■	ACoS	ACoS		
09 Tue	■ ■ ■	ACoS	BL_Ma	DMM alignment and tuning	x
10 Wed	■ ■ ■	BL_Ma	BL_Ma		
11 Thu	■ ■ ■	INH_E	INH_E	A2014-024-005575	x
12 Fri	■ ■ ■	INH_E	INH_E	Lamago, Daniel	
13 Sat					
14 Sun					
15 Mon					
16 Tue	■ ■ ■	BL_Ma	BL_Ma	DMM energy calibration	
17 Wed	■ ■ ■	BL_Ma	FL_BL	axis, 17.9.2014: Problem	
18 Thu	■ ■ ■	BL_Ma	BL_Ma	while scanning. Repa	
19 Fri	■ ■ ■		BL_NO	measurement	
20 Sat	■ ■ ■				

Name: Lamago, Daniel

Mail: daniel.lamago@kit.edu

Phone: 072160822845

Title: Analysis of Hard X-ray illumination optics and compound refractive objective lenses

Type: ANKA/IPS inhouse-proposal

Start: 2014-09-11

End: 2014-09-12

Key figures, workflow and features

ANNA & NAOMI controlling options

- Time budget
 - requested time
 - allocated time
 - used time
 - project start/end
- Reminders on reporting
 - status reports
 - project reports
 - publications
- Configurable export to Excel
 - statistics
- And more...

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(User)

Publications

2014 ▼ All States ▼ Journal ▼ Call 10 ▼ Show

[Read more about publications for KNMF proposals ... ↗](#)

5 10 15 all

ID	Author(s)	Publication	Status	Actions
2013-010 001542	Stefan Hengsbach, Andrés Díaz Lantada	Adv. Eng. Mater. [EARLY VIEW] (2014)	▼	   
2013-010 001542	Stefan Hengsbach, Andres Diaz Lantada	Biomed. Microdevices 16 4 (2014) 617-627	●	 
2013-010 001449	Alberto Villa, Carine E-Chan-Thaw, Marco Schiavoni, Sebastiano Campisi, Di Wang, Laura Prati	Chin. J. Catal. 35 6 (2014) 945-951	✓	 
2013-010 001303	Zhenyu Zuo, Hongjian Sun, Lin Wang and Xiaoyan Li	Dalton Trans. 43 (2014) 11716-11722	✓	 
2013-010 001303	Qingfen Niu, Hongjian Sun, Lin Wang, Qingping Hu, Xiaoyan Li	Dalton Trans. 43 (2014) 4059-4066	✓	 
2013-010 001303	Faguan Lu, Hongjian Sun, LinWang, Xiaoyan Li	Inorg. Chem. Commun. 43 (2014) 110-113	✓	 
2013-010 001303	Yunqiang Lu, Xiaoyan Li, LinWang, Hongjian Sun	Inorg. Chem. Commun. 41 (2014) 51-53	✓	 
2013-010 001303	Wenbo Zhang, Xiaoyan Li, Hongjian Sun	Inorg. Chim. Acta 419 (2014) 7-10	✓	 
2013-010 001649	Olga I. Baum PhD, Emil N. Sobol SD, Andrey V. Bolshunov MD, SD, Anatoly A. Fedorov MD, PhD, Olga V. Khomchik MD, Alexander I. Omelchenko PhD, Evgenii M. Shcherbakov MSc	Lasers Surg. Med. 46 1 (2014) 46-53	✓	 
2013-010 001303	Hua Zhao, Hongjian Sun, Xiaoyan Li	Organometallics 33 13 (2014) 3535-3539	✓	 
2013-010 001645	K.K. Chen, M. Mastronardi, C. Kübel,	Part. Part. Syst. Charact. [EARLY VIEW] (2014)	▼	   

Summary

- ANKA & KNMF: Two user facilities using almost identical proposal management software
- Professional system development and maintenance
- Most aspects over the complete proposal lifetime are covered: „from submission to publication“
- Needs of all stakeholders are considered: role approach and consistent layout of the user interface
- Many controlling options
- Off-system statistics via export to excel
- Team approach and distributed tasks
- Continuing improvements

- Suggested improvements (from User feedback):
"I can't think of anything - it was a perfect experience."