High Energy Photon Source
User Manual

March 2026

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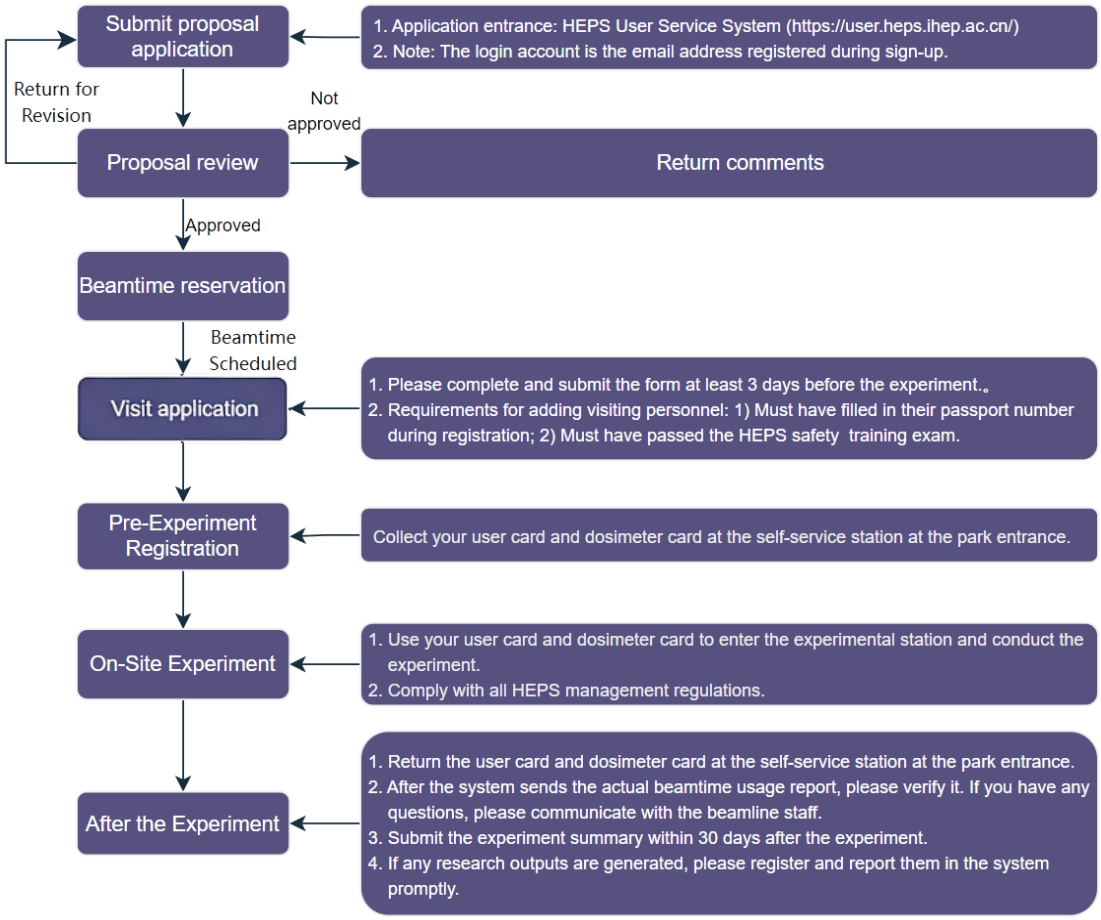
1. Proposal application and execution flowchart



2. Proposal application

(1) Application entrance

HEPS User Service System: https://user.heps.ihep.ac.cn/.
Please note: The login account is the email address registered during sign-up.

(2) Application instructions

- The proposal applicant must be a current employee, applications with students as the applicant will not be accepted.
- The proposal alternate contact will receive notification emails regarding the proposal review together with the proposal applicant. Please fill in the alternate contact information as needed.
- The proposal is valid for two years. The proposal will be considered concluded once the approved beamtime is fully utilized or after the two-year validity period has expired.

(3) Application process

- After entering the HEPS User Service System, click "Proposal Application" on the left side of the page to start filling out the application form.

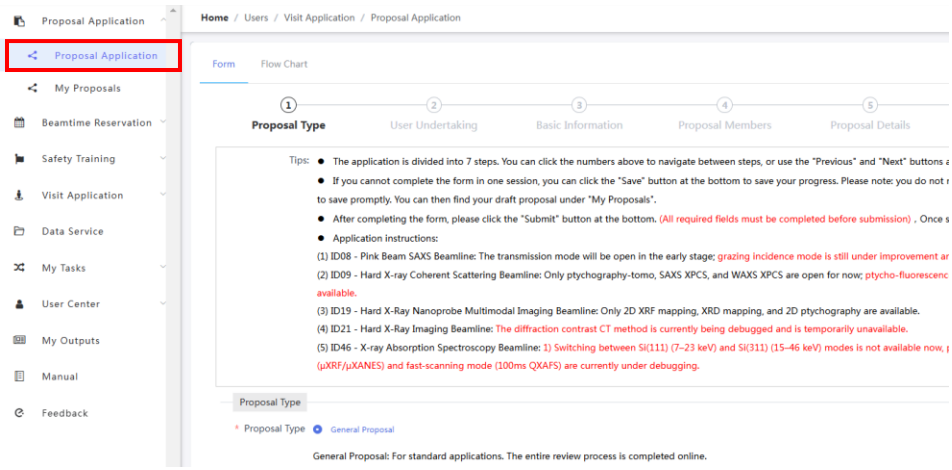


Fig.1 Proposal application page

- The proposal application consists of 7 steps. Please fill in and submit according to the requirements. The User Commitment Letter in Step 7 must be signed by the proposal applicant.

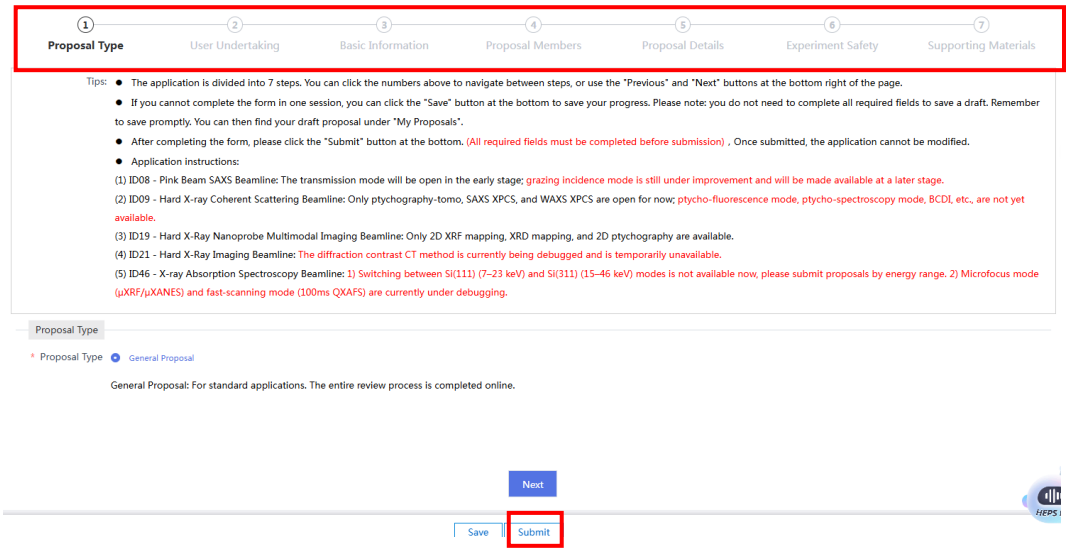


Fig.2 Proposal application steps

- After the proposal review is completed, the system will send an email notification of the review result to the proposal applicant and the alternate contact.

3. Beamtime reservation

(1) Reservation instructions

- Only proposals within their validity period can submit beamtime reservation requests.
- The experiment contact will receive email notifications regarding beamtime scheduling, experiment account, etc., together with the proposal applicant. Please fill in the experiment contact information as needed.

(2) Reservation process

- After clicking "Beamtime Reservation" on the left side of the system page, you can browse all the proposals within the validity period. Select the proposal for which you intend to reserve beamtime, and click "Beamtime Reservation" on the right side of the proposal information list to fill out the beamtime reservation application form.

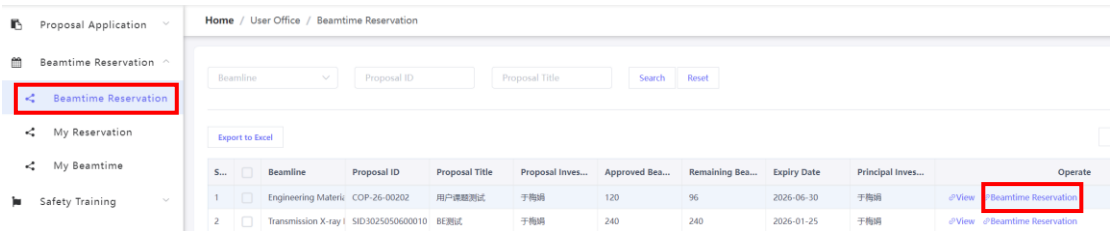


Fig.3 Beamtime reservation page

- The beamtime reservation consists of three steps. After completing all steps, click the "Submit" button at the bottom of the page.

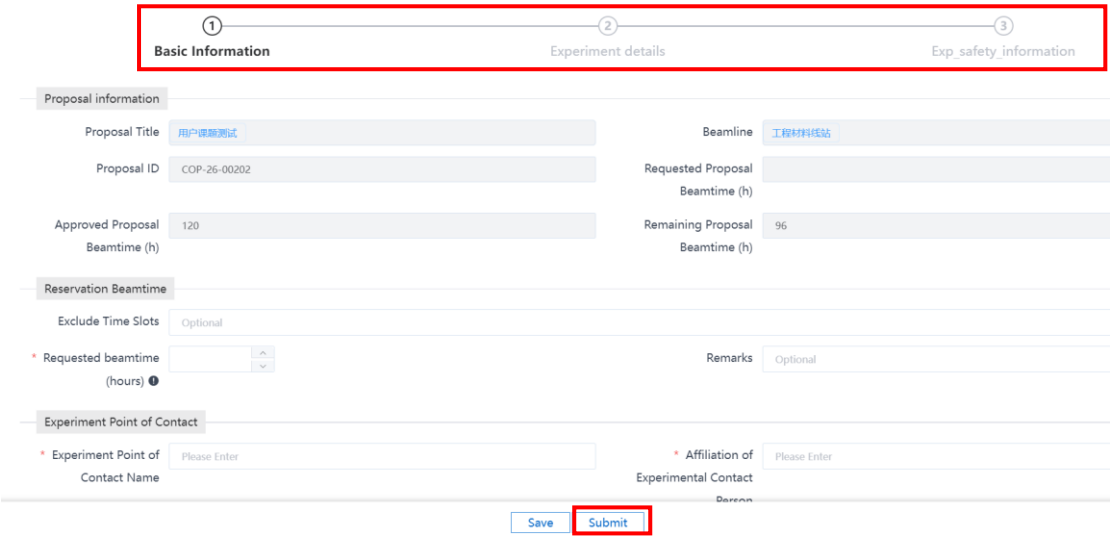


Fig.4 Beamtime reservation details interface

- After the beamtime is scheduled, the system will send an email to the proposal applicant and the experiment contact notifying them of the beamtime arrangement. If you have any questions, please communicate with the Beamline staff.

4. Visit application

(1) Visit requirements

Visiting personnel must meet the following two requirements before they can be added as experiment visitors.

- Have filled in their passport number during registration;
- Have passed the "HEPS User Safety Training and Examination" and be within the validity period.

(2) Application process

- In the "Visit Application" module of the HEPS User Service System, click the "Add" button under "Visit Purpose" to select the corresponding experimental beamtime, then fill in and submit the visit information for all personnel planning to conduct experiments on-site.。

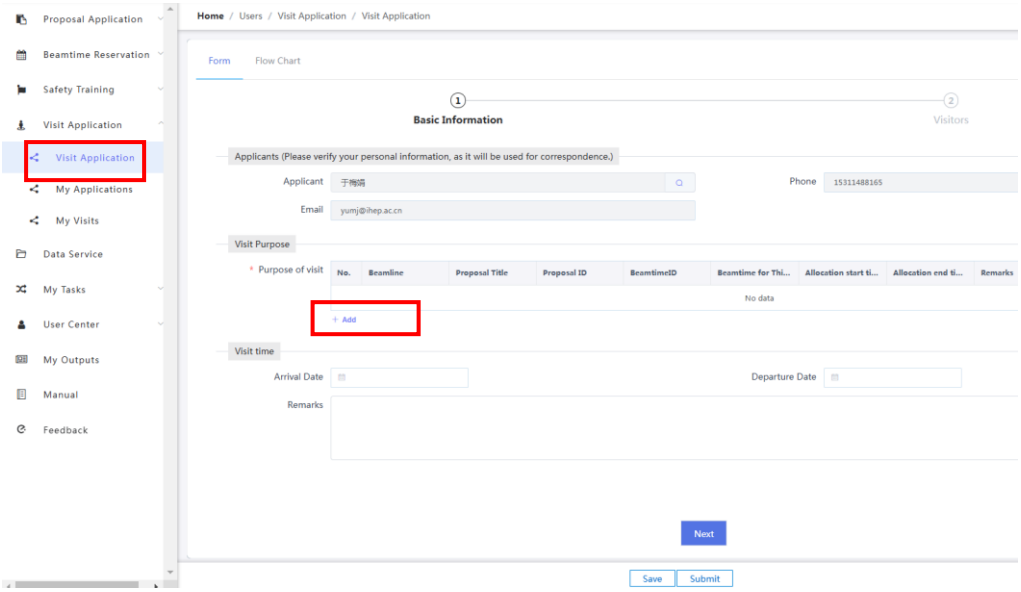


Fig.5 Visit application page

- After submitting a visit application, if you need to add visiting personnel, please click "My applications", select the corresponding visit application, and then click "Edit Visitors" on the right to add them.

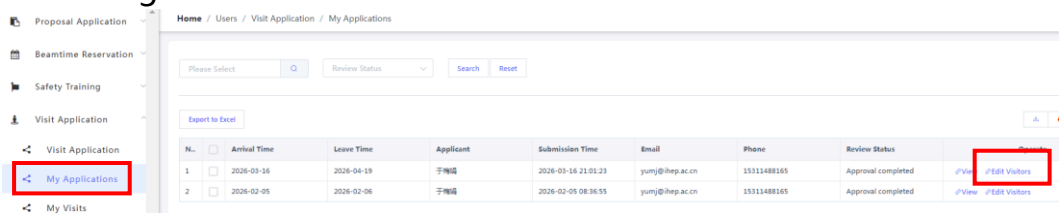


Fig.6 Add visiting personnel page

- After the visit is approved,
  All visiting personnel will receive an email notification from the system regarding the approval of their visit;
  The proposal applicant and experiment contact will receive an email notification from the system containing information including the experiment account, password, and Beamtime ID.

(3) Safety training

- click "Safety Training" to enter the safety training and examination page.

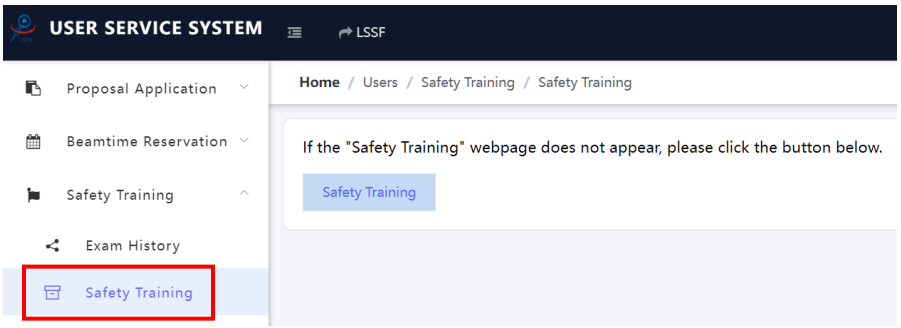


Fig.7 User safety training menu

- Click on "Course learning" at the top of the page to complete the study of "HEPS User Safety Training Materials" and "Introduction to the HEPS Personnel Safety Interlock System".

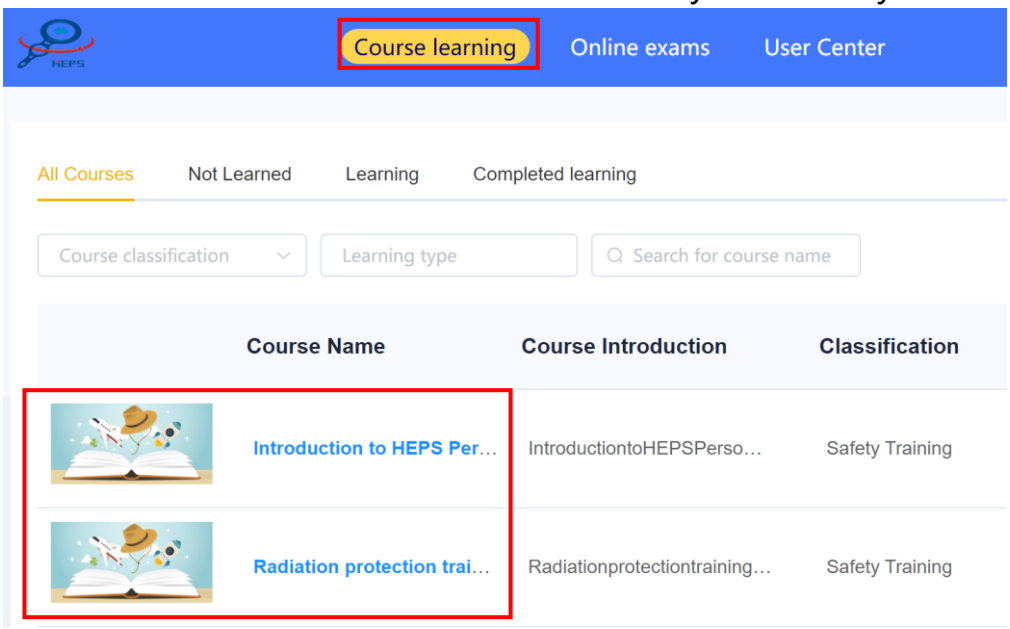


Fig.8 User safety training study page

- After completing the study, click "Online Exams" at the top of the page to complete the "HEPS User Safety Training Test Questions".

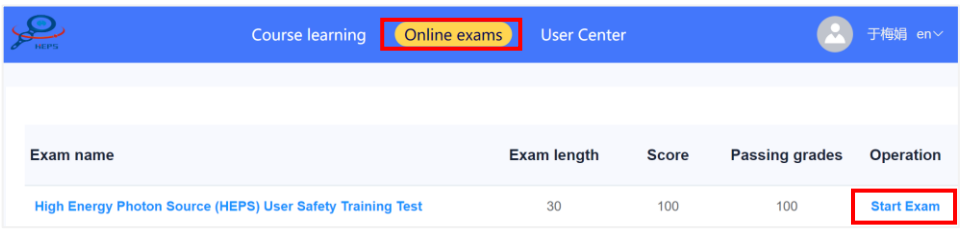


Fig.9 User Safety Training Exam Interface

5. On-site experiment

(1) Collect user card and dosimeter card

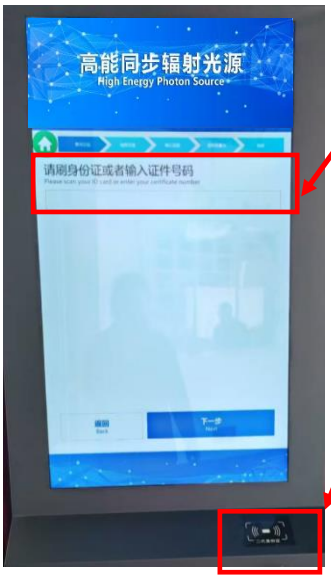
Upon arriving at HEPS, users should complete self-service registration at the user self-service station at the park entrance to collect their user card and dosimeter card.

Fig.10 (Left) HEPS User Self-Service Station; (Right) Self-Service Terminal

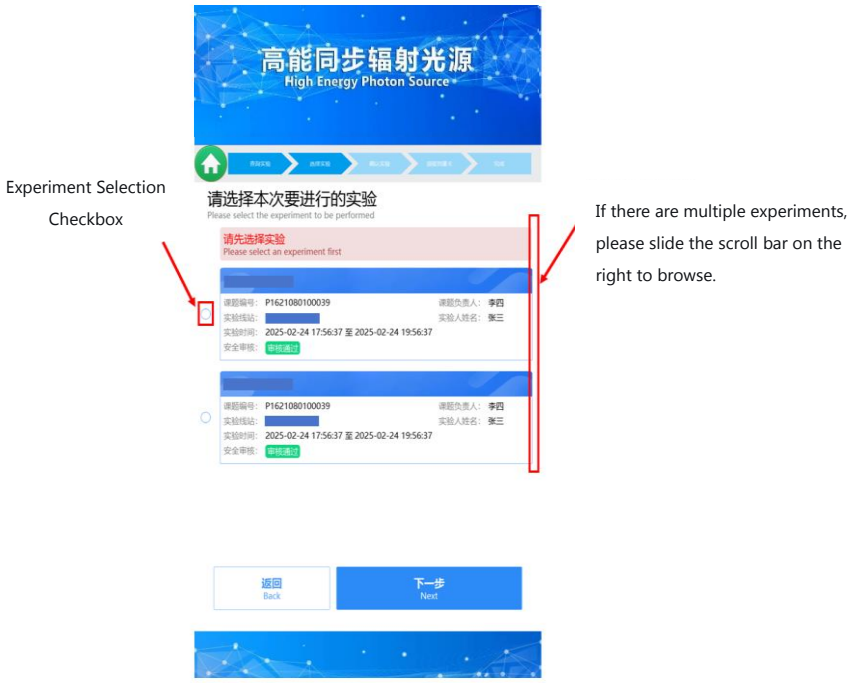
Note: Only users who have been added as experiment visitors can perform self-service check-in registration at the terminal.

- Click " Registration" on the terminal's touchscreen.

- To query the experiment, place your second-generation ID card on the reading area or manually enter your ID card number, then click Next.



- Select the experiment and click "Next". If there are multiple beamtime sessions, please browse by sliding the scroll bar on the right side of the screen.



- Confirm the experiment and click "Next".

- Wait for the dosimeter card and user card to be dispensed

✧ If the dosimeter card is dispensed but the terminal does not read its number, please reposition the dosimeter card so the terminal can read the number; if it still cannot be read after repositioning, you can manually enter the 9-digit number starting with HEPS on the label and click “Next”.

✧ If the dosimeter card is not dispensed, please click the “Retry” button on the screen.

✧ If multiple dosimeter cards are dispensed, please return the extra cards immediately after the registration process using the “Return” procedure.

- Collect the user card from the “User Card Pickup Port” and the dosimeter card from the “Dosimeter Card Pickup/Return Port” respectively to complete the registration.
  Note: Card holders and lanyards are available on the shelf. Please place the user card in a card holder to prevent wear and tear that could affect its use.

(2) Conduct the experiment

- Strictly adhere to all HEPS rules and regulations, and use your user card and dosimeter card to enter the experimental hall.
- Conduct the experiment using the experiment account, password, and Beamtime ID provided in the notification email,

as shown in the figure below.

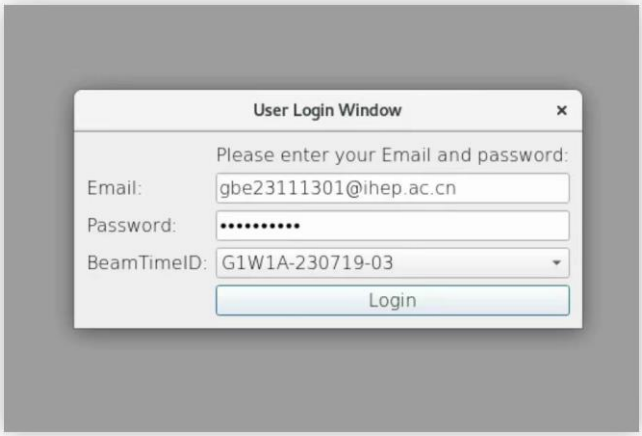


Fig.11 Example interface for users to enter experiment account, password, and Beamtime ID before an experiment.

6. After experiment

(1) Return user card and dosimeter card

When leaving HEPS, please return your user card and dosimeter card at the self-service station at the park entrance. In case of loss or damage, please contact the User Office immediately.

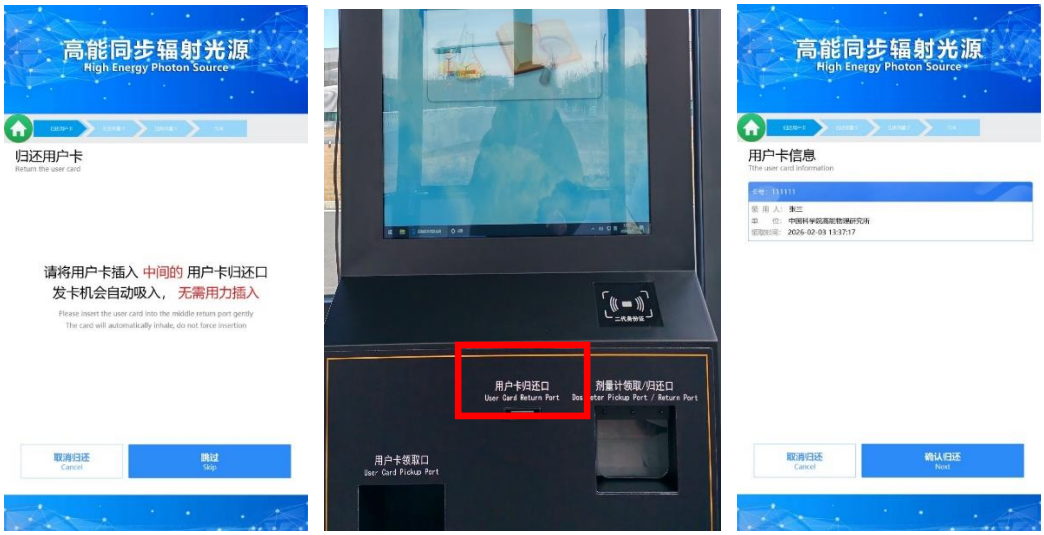
Notes :

- Please remove the user card from its holder before returning it, and place the holder and lanyard back in their designated spots on the shelf.
- Return the user card first, then the dosimeter card.

Operation Steps :

- Click “Return” on the terminal screen

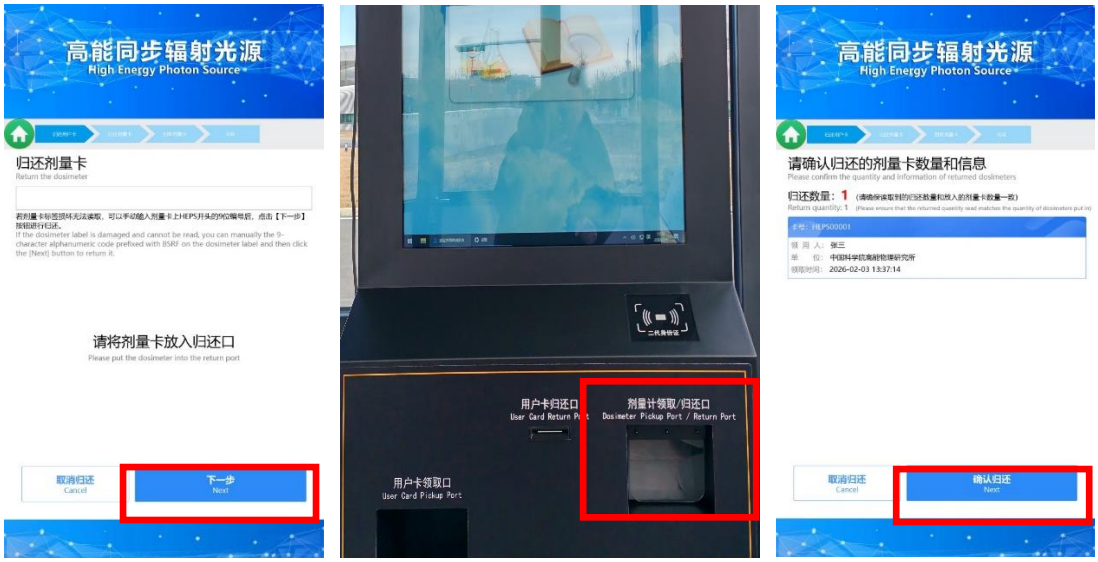
- To return the user card, insert it into the [User Card Return Port] on the terminal (insert gently, the machine will pull it in automatically). After the system reads the user card information, click "Next".



- To return the dosimeter card, place it into the [Dosimeter Card Pickup/Return Port] on the terminal, click [Next]. After the system reads the dosimeter card information, click [Next].

  Dosimeter cards not dispensed from the terminal cannot be returned here.

  If the dosimeter card number was entered manually when pickup, please also enter it manually when returning.



- Dosimeter card returned successfully. The return process is now complete.

(2) Data download

- Click the "Data Service" menu bar in the system to jump to the HEPS User Data Service System, or directly access it via the following URL (https://data.heps.ihep.ac.cn/) to download experimental data (The download account and password are the experiment account and password).

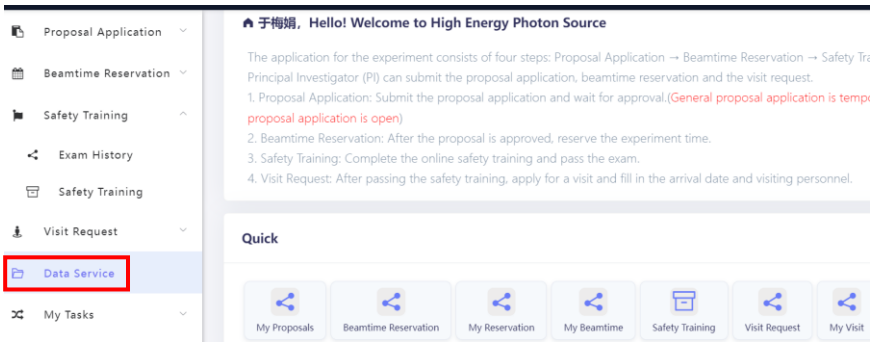


Fig.12 Data service menu in the system

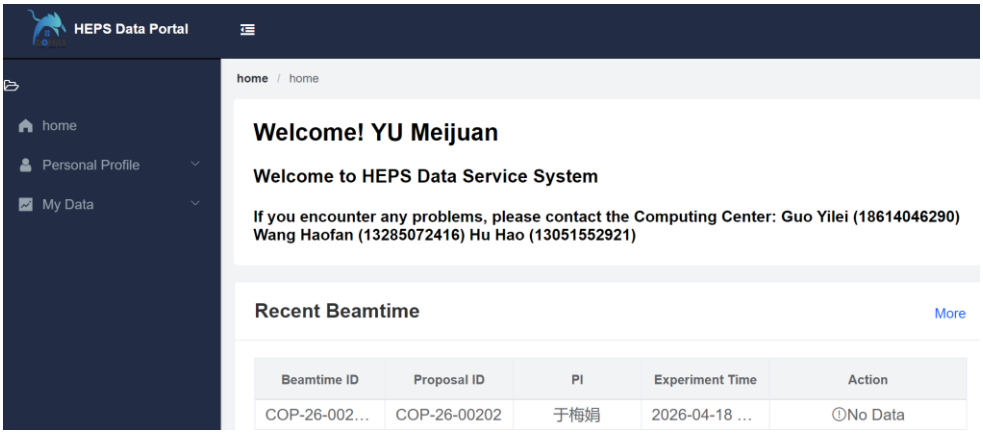


Fig.13 HEPS Data service system page

- To meet the demand for high-speed downloading of large experimental data volumes from beamlines, HEPS provides users with dedicated high-speed data download terminals. These terminals are deployed in user lounges such as 18-101, 24-125, and 5-123, are equipped with various mobile storage interfaces, and offer high-speed data download services.
- The terminals run a self-developed dedicated client for high-speed data download: Users can log in to the terminal with their experiment account, open the dedicated client, connect a mobile storage device, and activate the high-speed data download service. Actual measurements show that the download rate for a single task can reach up to 19 Gbps.

Fig.14 Dedicated All-in-One Machine for Data Download

- The terminal supports a wide range of interfaces: including Thunderbolt 3/4, USB 3.2, and network NAS interfaces.
  - ✧ Thunderbolt 3/4 interface: Suitable for NVMe protocol SSDs (such as M.2 NVMe drives);
  - ✧ USB 3.2 interface: Compatible with USB flash drives and portable hard drives (SATA protocol 2.5/3.5-inch drives);
  - ✧ Network NAS interface: Supports mounting NAS storage devices over the network.

(3) Actual beamtime confirmation

After receiving the email notification from the system regarding the actual beamtime usage, please verify it as soon as possible. If you have any questions, please communicate with the Beamline staff.

(4) Experiment summary

- Within 30 days after the experiment ends, submit the experiment summary via "My Reservation" in the system.
- If there are any scientific outputs (papers, patents, awards, social benefits, etc.), please acknowledge according to "8. User Acknowledgment and Citation Identifier Code" and provide feedback in the system promptly after the output is published. Go to the "My Outputs" page and click "New" to fill in the information.

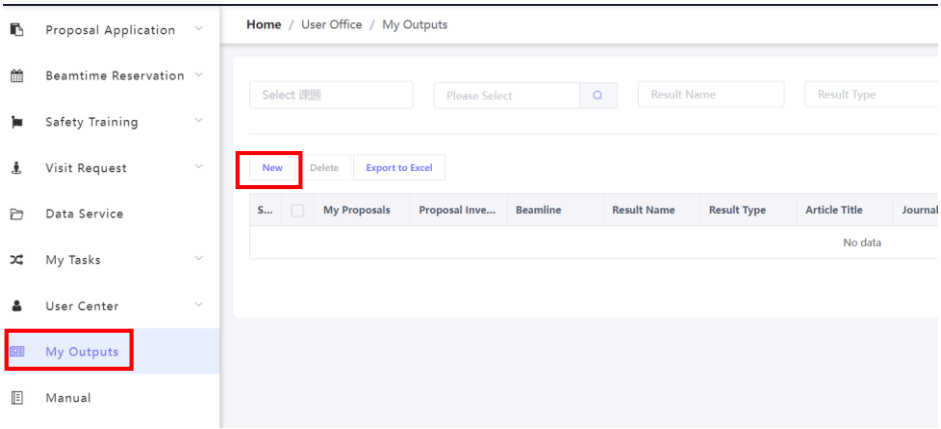


Fig.15 Outputs submission page

(5) Feedback

Please provide your feedback or suggestions via the following link or QR code.

Link: https://docs.ihep.ac.cn/link/BAF108449FCF744BCF933670D6FB911BBF

QR Code:

7. User outputs

(1) Acknowledgment requirements

If there are any scientific outputs (papers, patents, awards, social benefits, etc.), please acknowledge according to the HEPS User Output Acknowledgment Identifier Code citation requirements, and register the feedback promptly in the "My Outputs" section of the system after the output is officially published. The specific citation instructions are as follows:

We thank the IDXX-XXX Beamline of High Energy Photon Source (https://cstr.cn/31138.02.HEPS.ID31) for providing technical support and assistance in XRD data collection.

Specific example (Please modify the content in red font according to the actual situation)

We thank the ID31-High Pressure Beamline of High Energy Photon Source (https://cstr.cn/31138.02.HEPS.ID31) for providing technical support and assistance in XRD data collection.

(2) Identifier codes for each beamline

No.	Beamline	Identifier code
BM44	Tender X-Ray Beamline	31138.02.HEPS.BM44
ID02	Microfocusing X-Ray Protein Crystallography Beamline	31138.02.HEPS.ID02
ID05	Low-Dimensional Structure Probe Beamline	31138.02.HEPS.ID05
ID07	Engineering Materials Beamline	31138.02.HEPS.ID07
ID08	Pink Beam SAXS Beamline	31138.02.HEPS.ID08

No.	Beamline	Identifier code
ID09	Hard X-Ray Coherent Scattering Beamline	31138.02.HEPS.ID09
ID19	Hard X-Ray Nanoprobe Multimodal Imaging Beamline	31138.02.HEPS.ID19
ID21	Hard X-Ray Imaging Beamline	31138.02.HEPS.ID21
ID23	Structural Dynamics Beamline	31138.02.HEPS.ID23
ID30	Transmission X-Ray Microscopic Beamline	31138.02.HEPS.ID30
ID31	High Pressure Beamline	31138.02.HEPS.ID31
ID33	Hard X-Ray High Resolution Spectroscopy Beamline	31138.02.HEPS.ID33
ID41	High Resolution Nanoscale Electronic Structure Spectroscopy Beamline	31138.02.HEPS.ID41
ID42	Optics Test Beamline	31138.02.HEPS.ID42
ID46	X-Ray Absorption Spectroscopy Beamline	31138.02.HEPS.ID46
	User Support Lab	31138.02.HEPS.USL

8. Accommodation and meals & internet, campus map

(1) Accommodation and Meals

The User Service Building within the park provides accommodation and meals.

Accommodation: If you require accommodation, please contact the hostel front desk in advance. Tel: 86-10-69680831, 86-18001162658.

Meals: Cafeteria on the first floor of the User Service Building; self-service, pay by weight, scan WeChat/Alipay QR code to pay for meals.

Breakfast: 7:00-9:00; **Lunch:** 11:30-13:30; **Dinner:** 17:00-19:00

(2) User lounge

During experiments, users can go to user lounge areas outside the experimental floor for rest and meals.

B-02-111 (Snacks and drinks vending machines)

B-04-101 (Water dispenser, tables and chairs, refrigerator, snacks and drinks vending machines)

B-05-123 (Water dispenser, tables and chairs, data download terminal)

B-07-101 (Water dispenser, tables and chairs, data download terminal)

B-18-101 (Data download terminal)

B-19-101 (Water dispenser, tables and chairs, coffee machine)

B-21-101 (Water dispenser, refrigerator, snacks and drinks vending machines)

B-23-123 (Water dispenser, tables and chairs, snacks and drinks vending machines)
B-24-125 (Tables and chairs, data download terminal)

(3) Network

HEPS provides users with 2 different types of network services. Users can choose one to register and use based on their situation.

- User-specific network 『HEPS_User』(**Prerequisite: A Chinese mobile phone number is required**)

  The HEPS campus provides a dedicated wireless network access service for experimental users. The wireless signal is "HEPS_User", and this signal uses a mobile phone verification code method for network access.

  Instructions and precautions:

✧ Upon arriving at the HEPS site, access the wireless signal "HEPS_User". The device will automatically pop up a registration page. Enter the name and mobile phone number registered in the User Service System to receive a verification code and complete network registration.

Note! Wireless devices need to **disable** the random MAC address function for the "HEPS_User" signal **before registration**.

✧ After successful registration, disconnect from the network and reconnect to access the internet.

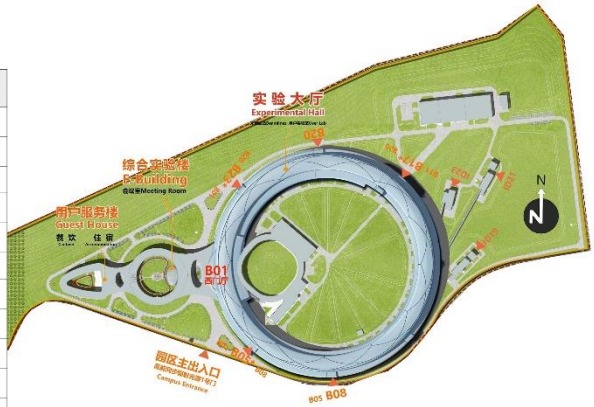
- The network access validity period for experimental users is the start and end dates of the current experiment + 3 days. The account will be automatically deleted upon expiration. If a user extends the experiment, the network expiration date will be automatically updated.
- Wireless network roaming support (SSID: EDUROAM)

  If you already have an EDUROAM account, you can select 『eduroam』 and log in to use the wireless network directly.

(4) Campus map

高能同步辐射光源
High Energy Photon Source | HEPS

序号 NO.	线站名称Beamlines	顺序代号	位置代号 Location	出入口 Entrance
1	工程材料线站 Engineering Materials Beamline	B1	ID07	B05
2	硬X射线纳米探针线站 Hard X-ray Nanoprobe Multimodal Imaging Beamline	B2	ID19	ID19
3	结构动力学线站 Structural Dynamics Beamline	B3	ID23	ID23
4	硬X射线相干散射线站 Hard X-ray Coherent Scattering Beamline	B4	ID09	B08
5	高分辨谱学线站 Hard X-ray High Resolution Spectroscopy Beamline	B5	ID33	B20
6	高压线站 High Pressure Beamline	B6	ID31	B20
7	硬X射线成像线站 Hard X-Ray Imaging Beamline	B7	ID21	ID21
8	X射线吸收谱学线站 X-ray Absorption Spectroscopy Beamline	B8	ID46	B01
9	低维结构探针线站 Low-Dimension Structure Probe Beamline	B9	ID05	B05
10	生物大分子微晶衍射线站 Microfocusing X-ray Protein Crystallography Beamline	BA	ID02	B01
11	粉光小角散射线站 Pink Beam SAXS Beamline	BB	ID08	B05
12	高分辨纳米电子结构线站 High Resolution Nanoscale Electronic Structure Spectroscopy Beamline	BC	ID41	B23
13	通用环境谱学线站 Tender X-ray Beamline	BD	BM44	B01
14	X射线显微成像线站 Transmission X-ray Microscope Beamline	BE	ID30	B17
15	测试线站系统 Test Beamline	BF	ID42	B01



园区布局图
HEPS Campus Map

9. Contact information

(1) User office：

YU Meijuan，heps-user@ihep.ac.cn，86-15311488165

(2) Experimental Data Managemen：

GUO Yilei，ylguo@ihep.ac.cn，86-18614046290

HU Peng，hup@ihep.ac.cn，86-15600290501

(3) Network Fault Contact：

XU Qingchen 86-13811128499

WANG Yanming 86-13693691268

CUI Tao 86-13810569017

(4) User contacts for each Beamline

No.	Beamline	User contacts
BM44	Tender X-Ray Beamline	MA Chenyan, macny@ihep.ac.cn
ID02	Microfocusing X-Ray Protein Crystallography Beamline	GAO Zengqiang, gaozq@ihep.ac.cn SHE Zhun, shezhun@ihep.ac.cn
ID05	Low-Dimensional Structure Probe Beamline	WENG Xiaorong, wengxr@ihep.ac.cn WANG Huanhua, wanghh@ihep.ac.cn
ID07	Engineering Materials Beamline	YANG Yiming, yangym@ihep.ac.cn (Imaging, XRD, 3DXRD) WANG Jiayi, wangjy@ihep.ac.cn (SAXS, WAXS) CHENG Hu, hucheng@ihep.ac.cn (XRD, depth-resolved XRD) FAN Longlong, fanll@ihep.ac.cn (PDF, XRD) WANG Youkang, wangyk@ihep.ac.cn (XRD, DAXM)
ID08	Pink Beam SAXS Beamline	MO Guang, mog@ihep.ac.cn LIU Yunpeng, liuyunpeng@ihep.ac.cn
ID09	Hard X-Ray Coherent Scattering Beamline	ZHOU Liang, zhouliang@ihep.ac.cn
ID19	Hard X-Ray Nanoprobe Multimodal Imaging Beamline	CHANG Guangcai, changgc@ihep.ac.cn JI Bin, jibin@ihep.ac.cn LI Yu, liyu@ihep.ac.cn
ID21	Hard X-Ray Imaging Beamline	LI Gang, lig@ihep.ac.cn
ID23	Structural Dynamics Beamline	ZHANG Bingbing, zhangbb@ihep.ac.cn YAO Chunxia, yaocx@ihep.ac.cn LI Yuxiao, liyuxiao@ihep.ac.cn
ID30	Transmission X-Ray Microscopic Beamline	YUAN Qingxi, yuanqx@ihep.ac.cn ZHANG Jin, zhangjin2016@ihep.ac.cn
ID31	High Pressure Beamline	ZHANG Fei, fzhang@ihep.ac.cn
ID33	Hard X-Ray High Resolution Spectroscopy Beamline	ZHANG Yujun, zhangyujun@ihep.ac.cn
ID41	High Resolution Nanoscale Electronic Structure Spectroscopy Beamline	WANG Jiaou, wangjo@ihep.ac.cn LIU Chen, cliu@ihep.ac.cn ZHAO Wenjuan, wjzhao@ihep.ac.cn
ID46	X-Ray Absorption Spectroscopy Beamline	ZHENG Lirong, zhenglr@ihep.ac.cn