

ASIF Gateway

Operative manual for Users and Facility managers

version 0.1

General description

ASIF facilities are planned to gradually become available to industrial, institutional and research registered user by means of the asif gateway website.

The ASIF gateway is the main tool to allow (registered) users to access the ASI supported irradiation facilities for radiation damage investigations within ASIF framework.



ASIF Gateway Access to Irradiation Facilities of ASI-ENEA-INFN agreements (version 2.2.1)



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ASIF GATEWAY: user access to ASIF irradiation facilities

Asi Supported Irradiation Facilities (ASIF) GATEWAY of ASI-ENEA-INFN agreements



Website latest update on January 13, 2023

In space radiation environment (similarly to other radiation environments), electronic devices undergo radiation damage induced by both cumulative and single event effects, i.e.,

- single event effects (SEE) - due to a highly ionizing dose deposition caused by a single high energy particle occurring in a sensitive region of a device - can occur at any time and with short time response;
- total ionizing dose (TID) effects - due to the accumulation of ionizing dose deposition over a long time - are a long term effects and uniformly affect all devices;
- displacement damage (TNID) effects – due to the accumulation of crystal lattice defects over a long time – are long term effects and uniformly affect all devices

ASIF program, as formulated by ASI (see this [webpage](#)), aims to establish an interactive coordinated set of the irradiation facilities, throughout the national territory, serving the national and international space communities. In fact, at national level industrial and institutional/research assets and centers in the field of EEE need to be coordinated, supported and represented at international level.

Italy has a long experience in the field of electronics devices design, manufacturing and utilization for various market sectors and in particular for Space. For instance, in the last years some project have been implemented in the field of GaAs/GaN EEE for consolidating the presence of the National GaN supply chain in the european context, thus achieving the role of second european source.

In the above context, the core elements of the supply chain are the availability of dedicated infrastructures like foundries, design centers, testing facilities and research centers and, finally, irradiation facilities.

Registration procedure

Registration procedure is available in a web-link in the top bar of the webpage.



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To register as a user of ASIF gateway one has to fill a form with first name, last name and institution/company. Additional information needed are the e-mail and address of the administration. This two information will be used, eventually, for the compilation of the request for quotation (RFQ).

All fields are mandatory.

Registration Form	
First Name:	<input type="text"/>
Last Name:	<input type="text"/>
E-mail:	<input type="text"/>
Institution/Company:	<input type="text"/>

To book and get a price quotation for irradiation time the user has to provide the following additional information:

Additional Information	
Administration e-mail:	<input type="text"/>
Administration Address:	<input type="text"/>

On the left is the registration form. User has to fill also the captcha field to prevent machine input.

By clicking Submit, you agree on our [privacy policy](#).

Enter Captcha:



Can't read the image? [click here](#) to refresh

Submit

After the form submission, if approved by the webmaster, the user will get the access information by e-mail.

The login form is available on the left panel of the website where either *users* or *facility managers* can access the restricted content of the website.

Facility managers are taking care of the irradiation request submitted by users by means of the tools available in the ASIF Gateway (see Booking manager utility section).

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Facilities details

After login in the ASIF Gateway website the list of ENEA and INFN facility shows up on the left panel.

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Calliope, ENEA Casaccia

The Calliope facility is available for irradiation upon request (see “[How to book](#)” section).

- [How to book irradiation time and/or dedicated treatment](#)
- [User access to the facility](#)
- [Safety instructions](#)
- [Irradiation parameters](#)
- [Technical information](#)
- [Request for technical support](#)
- [Travel information](#)

For any further information, please contact calliope.asif@enea.it.

Brief facility description

The Calliope plant is a pool-type gamma irradiation facility equipped with a ^{60}Co radio-isotopic source array in a high volume (7.0 m X 6.0 m X 3.9 m) shielded cell. The source rack has a plane geometry with 25 ^{60}Co source rods (active area: 41 cm X 75 cm).



Calliope source rack within the irradiation cell (picture acquired by a remote camera).

The ^{60}Co radioactive sources emit two photons of 1.17 and 1.33 MeV (mean energy = 1.25 MeV). The maximum licensed activity for the Calliope plant is 3.70×10^{15} Bq (100 kCi) and the maximum dose rate (January 2022) is 7.3 kGy/h.

The Calliope facility is equipped with remote acquisition and touch screen display control integrated systems, designed and developed to monitor the irradiation test environmental parameters (temperature, humidity, air flux), water contamination, pool water level. A high-resolution single-camera monitoring system was installed to allow a complete visual control of the cell also during irradiation tests and to record online pictures and videos.

the following sections are available for each facility, along with the introduction section:

- How to book irradiation time
- User access to the facility
- Safety instructions
- Irradiation parameters
- Technical information
- Request for technical support
- Travel information

in the section “How to book” is available the form to apply for an irradiation request.

Irradiation request

In the “How to book irradiation time” section there is a link to a form for applying an irradiation request. The form is different for every facility and must be filled at least for the mandatory fields.

*** Fields marked with asterisk are mandatory.**

Information sent to Facility	
Name:	Mauro Tacconi
Email:	mauro.tacconi@unimib.it
Institution/Company:	University of Milano Bicocca
1) Description of the irradiation:	
Describe the scope of the irradiation:*	
<input type="text"/>	
Describe the devices under irradiation:*	
<input type="text"/>	
Describe the fluences required:*	
<input type="text"/>	
2) Booking dates	
Tentative starting date: (format mm/dd/yyyy)	<input type="text"/>
Tentative end date: (format mm/dd/yyyy)	<input type="text"/>
Further information regarding dates:	
<input type="text"/>	
3) Further information	
If necessary, please provide all the additional data and information important for the application:	
<input type="text"/>	
4) Accessing the facility:	
check the box if all the team members accessing the facility are classified as radiation workers :	<input type="checkbox"/>

Here is, as an example, the form for the FNG facility

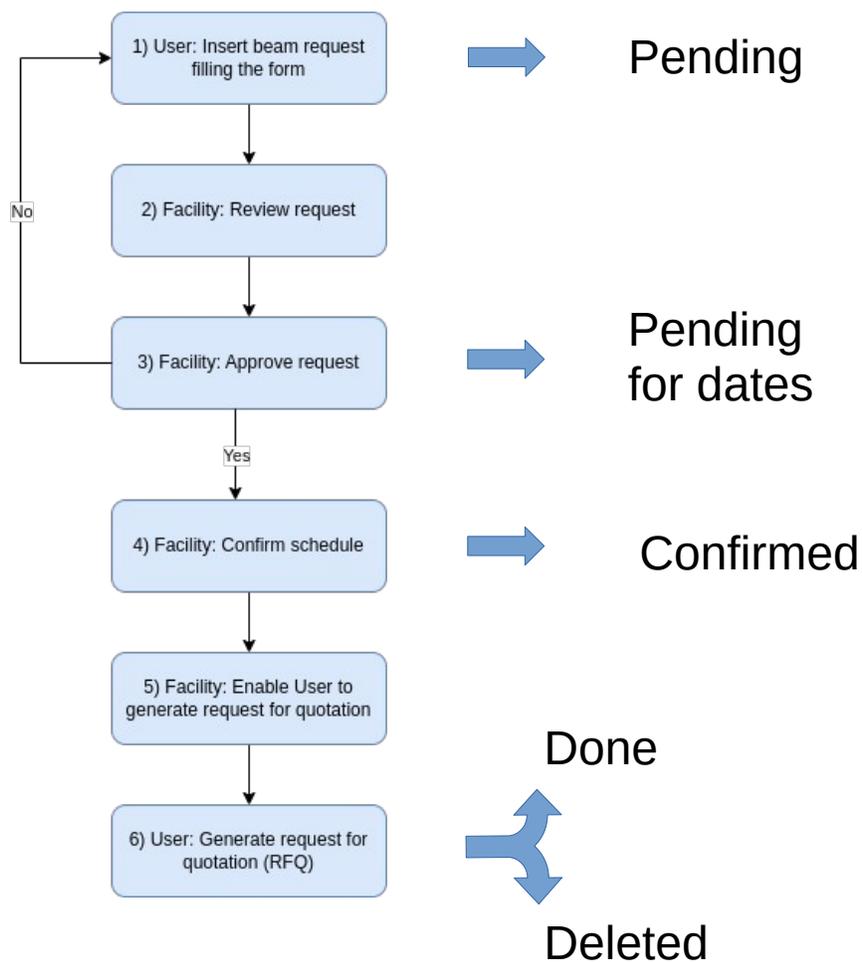
Submit

After the form is submitted the corresponding facility is notified. A copy of the request will be sent to the requesting user as well.

Every irradiation request has a status attribute. The possible status of a request are:

- *pending*: the irradiation request is under revision by the facility
- *pending for dates*: the irradiation request is accepted but the time schedule is still to be defined
- *confirmed*: the irradiation request is accepted and dates for activity are set
- *done*: the irradiation was performed
- *deleted*: the irradiation was not/could not be performed.

The facility manager can change the status of the request according to the following diagram. The change of status is reported for every step of the process:



The user and the facility are notified by e-mail for every change in the irradiation request.

Booking Manager Utility

The booking manager utility is a tool that let the facility manager handle the user requests. When a facility manager log-in the website the “booking manager utility” link is shown on the left panel of the website.

The booking manager utility shows the list of the request applied to the facility.

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DOCUMENTATION

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Id	User	Description	Start date	End date	Status	Command	RFQ	Insert Date	Modify Date
fn-12-2023	mtacconi	University of Milano Bicocca	2023-04-24	2023-04-28	CONFIRMED	Update	show	2023-02-21 10:01:44 (GMT)	2023-02-21 10:02:52 (GMT)

[Add new item](#)

Details
📅 Last Updated: 09 February 2023
👁 Hits: 275

The information for each irradiation request are:

- *id*: the unique identification code associated with the requesting
- *User*: the user that submitted the request
- *Description*: the institution/company of the user
- *Start date*: The start date of the irradiation activity
- *End date*: The end date of the irradiation activity
- *Status*: the actual status of the request

- *Command*: A panel to handle the request (see following picture)

Update item	
Description:	University of Milano Bicocca
Tentative starting date:	04/24/2023
Tentative end date:	04/28/2023
Further information regarding dates: information regarding dates	
Status:	PENDING FOR DATES
Request for quotation:	ENABLED
Generated RFQ	not generated

Update

Update form for the FNG facility to update the details of the request and the status. The Facility manager can also enable the user to generate the RFQ (request for quotation)

1) Description of the irradiation:
Describe the scope of the irradiation:* scope of the irradiation
Describe the devices under irradiation:* devices under irradiation
Describe the fluences required:* fluences required
2) Further information
If necessary, please provide all the additional data and information important for the application: further information

- *RFQ*: if the “show” link is present the RFQ, generate by the user, can be shown.
- *Insertion date*: Date of first submission of the request
- *Modification date*: Date of the latest modification of the request

User Bookings

The booking manager utility is a tool that let the facility manager handle the user requests. When a facility manager log-in the website the “booking manager utility” link is shown on the left panel of the website.

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id	Facility	Start date	End date	Status	RFQ*	Info	Insert date	Last modify
ca-28-2023	calliope	2023-03-01	2023-03-03	CONFIRMED	show	show	2023-02-13 11:57:58 (GMT)	2023-02-13 12:01:02 (GMT)
ca-30-2023	calliope	2023-04-08	2023-04-14	CONFIRMED	create	show	2023-02-21 09:48:14 (GMT)	2023-02-21 09:51:29 (GMT)
fn-12-2023	fng	2023-04-24	2023-04-28	PENDING FOR DATES		show	2023-02-21 10:01:44 (GMT)	2023-02-21 10:02:52 (GMT)
tr-4-2023	triga	2023-11-26	2023-11-29	CONFIRMED	show	show	2023-02-21 10:30:57 (GMT)	2023-02-21 11:16:44 (GMT)
ta-3-2023	tapiro	2023-05-21	2023-05-31	CONFIRMED	show	show	2023-02-21 14:56:28 (GMT)	2023-02-21 15:03:03 (GMT)

*Request for quotation button will be enabled by the facility.

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 Last Updated: 28 February 2023

 Hits: 215

The information for each irradiation request are:

- *id*: the unique identification code associated with the requesting
- *Facility*: the facility to which the irradiation request was applied
- *Start date*: The start date of the irradiation activity
- *End date*: The end date of the irradiation activity
- *Status*: the actual status of the request
- *RFQ*: if the “show” link is present the RFQ was already generate by the user and can be shown

if the “create” button is present, the user is enabled to generate the RFQ by mean of the following form:

*** Fields marked with asterisk are mandatory.**

Request id: tr-12-2023	
Name:	Mauro Tacconi
Institution:	University of Milano Bicocca
E-mail:	mauro.tacconi@unimib.it
Start Date:	2023-04-24
End Date:	2023-04-28
Number of days:*	<input type="text" value="3"/>

Billing Information	
Administration E-mail:	amministrazione@mib.infn.it
<div style="border: 1px solid #ccc; padding: 5px;">University of Milano Bicocca Piazza della Scienza, 3 20126 Milano - Italy</div>	

RFQ generation form for the FNG facility. The user, in this case, complete the number of days of irradiation to be quoted.

- *Info:* This panel show the details of the irradiation request according to the information provided by the user and modified by the facility. Only the facility manager can modify the irradiation details.
- *Insertion date:* Date of first submission of the request
- *Modification date:* Date of the latest modification of the request

User details

The “User details” link, on the left panel, shows the user details. User can change the Administration E-mail and institution/company address the will be shown on the request for quotation (RFQ).

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User details

Registration Information	
Name:	Mauro Tacconi
Institution:	University of Milano Bicocca
E-mail:	mauro.tacconi@unimib.it

Request for quotation details	
Administration E-mail:	<input type="text" value="amministrazione@unimib.it"/>
Addressed reference for quotation documents: University of Milano Bicocca Piazza della Scienza, 3 20126 Milano - Italy	
<input type="button" value="Update"/>	

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 Last Updated: 07 February 2022

 Hits: 71