

# EIROforum Topical Workshop on Robotics and Remote Operation

Grenoble 1-3 June 2022



EMBL



# Welcome



Welcome to this 2022 EIROforum Topical Workshop on Robotics & Remote Operation.

The workshop is organised by the Instrumentation Working Group and is co-hosted by ESRF & ILL



Topical Workshop on Robotics and Remote Operation | 1-3 June 2022 Grenoble

3 Major European facilities  
(ESRF, ILL, EMBL)



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Instrumentation Working Group



Petra Riedler



Steffen Hauf



Jean-Claude Biasci



Thomas Schneider



Joao Figueiredo & Andrea Murari



Thibaut Prod'homme



Sebastian Egner



Paolo Mutti





Jean-Claude Biasci

Kimberley Robert

## ESRF

ESRF-EBS, the world's brightest synchrotron, provides the international scientific community with unprecedented tools to study materials and living matter.



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Paolo Mutti

Sarah Kelleher

## ILL:

The world's leading facility in neutron science & technology



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## EMBL Grenoble

EMBL's site in France is specialised in Structural Biology research, instrumentation development and services

3 Major European facilities  
(ESRF, ILL, EMBL)



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1 - 3 June 2022  
13:30 - 18:00 CET

Online

# Robotics & Remote Operation

EIROforum Workshop

- Remote handling robots, precision, high reproducibility and speed
- Instruments automation, robotics and mechatronics
- Radio protection, maintenance and robotics
- Remote control experiments platforms
- Telerobotics and orbital robotics

Thibaut Profhomme (ESA), Steffen Hauf (European XFEL),  
Thomas Schneider (EMBL), Petra Riedler (CERN),  
Paolo Murti (ILL), Jean-Claude Biasci (ESRF),  
Sebastian Egner (ESO), Andrea Murari (EUROfusion),  
João Figueiredo (EUROfusion)

Register before 25 May (Sun) 2022 at  
<https://indico.esrf.fr/event/4/>




**Robotic** systems are becoming essential in modern research facilities. Indeed, whether for reasons of distance, difficult environment, precision, or speed, the automation of experiments would not be made possible without such systems.

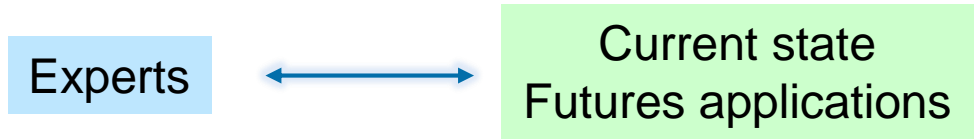
### Remote Operation:

The deployment of remote access to instruments and experiments has recently taken on another dimension with the COVID19 pandemic, thus providing new opportunities as well as giving more working flexibility.

**Robotics** is an interdisciplinary branch of computer science and engineering. Robotics involves design, construction, operation, and use of robots.

**Remote operation** indicates operation of a system or machine at a distance

source:internet



Afternoon

Wed 01/06  
13H30 17H45



Invited Speaker

Annette Stalh  
**Norwegian University  
of Science and  
Technology**

Robotics and vision based  
autonomic systems in  
challenging environments

Afternoon

Thu 01/06  
13H30 17H45



Invited Speaker

Kim Nergaard  
**ESA**

Getting ready for European Large  
Logistics Lander (EL3) operations of  
robotic surface assets on the Moon –  
Learning by doing

Morning

Fri 01/06  
09H00 14H00

## Wednesday 1st June 2022

13:30 14:00 **Logistics / Welcome**

14:00 14:30 **European XFEL**

*The FXE Robotic Arm - Integration and Applications - EHSAN, Wajid*

14:30 15:00 **European XFEL**

*Remote User Operation at the European XFEL - PRESTON, Thomas*

15:00 15:25 **ESO**

*The challenges of remotely operating an astronomical observatory – BE BRUCK, Carlos*

15:25 15:50 **ESO**

*Control and Collision Avoidance with the MOONS Fibre Positioners – BEARD, Steven & WILLEMSE, Bart*

15:50 16:15 **ESO**

*Remote Operations of the VLT – BRILLIANT, Stéphane*

16:15 16:45

*Break*

16:45 17:45 **Invited Speaker**

*Robotics and vision based autonomic systems in challenging environments - STAHL, Annette*

17:45

*End of the day*

Thursday 2nd June 2022

- 13:30 14:30 **EUROFusion**  
*Meeting the challenges of remote maintenance of Fusion power stations - SYKES , Nick*
- 14:30 15:00 **ESRF**  
*Robotic applications at the ESRF - WATIER, Yves*
- 15:00 15:30 **ESRF**  
*Remote user operation of ESRF experiments - MEYER, Jens*
- 15:30 16:00 **Break**
- 16:00 16:30 **ESA**  
*Overview of robotics at ESA - VISENTIN, Gianfranco*
- 16:30 17:00 **ESA**  
*ANALOG-1 controlling a rover from space - WORMNES, Kjetil*
- 17:00 18:00 **Invited Speaker**  
*Getting ready for EL3 operations of robotic surface assets on the Moon – Learning by doing – NERGAARD, Kim*

18:00

End of the day

## Friday 3rd June 2022

09:00	09:30	<b>ILL</b> <i>NOMAD Remote: controlling scientific operations from a distance – MUTTI, Paolo</i>
09:30	10:00	<b>ILL</b> <i>Motion planning for triple-axis spectrometers – WEBER, Tobias</i>
10:00	10:30	<b>CERN</b> <i>Robotics in future HEP <u>particule</u> detectors - GARGIULO, <u>Corrado</u> &amp; TEOFILI, Lorenzo</i>
10:30	11:00	<b>CERN</b> <i>Robotic Solutions for Remote Maintenance in Accelerators Complex at CERN - DI CASTRO, Mario</i>

11:00 11:30 *Break*

11:30	12:00	<b>EMBL</b> <i>EasyGrid: automated <u>Cryo</u>-Electron Microscopy sample grid preparation and control – PAPP, <u>Gergely</u></i>
12:00	12:30	<b>EMBL</b> <i>Robotics assisted pipeline for synchrotron based structural biology – FIEDLER, Stefan</i>
12:30	13:00	<b>Closure</b>

13:00 *End of the day*

Electrical engineering      Machine learning

Instruments automation      Speed

Computer science      Computer engineering

Orbital robotics      Collisions

Software engineering      Precision

Remote handling robots      Control engineering

Mechatronics

High reproducibility

Maintenance

Radio protection      Remote control

Collaboration      experiments platforms

Curiosity

*Can robotics exploration replace human exploration in space ?*

*Are we moving more and more towards remote experiences?*

*Remote operation reduces carbon footprint ?*

*Lack of collaboration between work teams ?*

## Time slots:

- 30mn      20mn presentation + 10 mn questions
- 25mn      20mn presentation + 5 mn questions

## Questions:

- use the chat
- Raise your hand

