# Digital LEAPS - Androids for remote access

# Report of Contributions

https://indico.psi.ch/e/14358

Contribution ID: **1** Type: **not specified**

# Remote handling of radioactive targets at the SPES facility

*Tuesday, 23 May 2023 10:00 (20 minutes)*

SPES (Selective Production of Exotic Species) is a new facility being developed by Legnaro National Laboratories of INFN. Once operational, it will be able to generate high-intensity RIB (Radioactive Ion Beams) for research in the field of nuclear physics, and investigate medical applications through the ISOLPHARM project. The interaction of a 40 MeV 200 μA primary beam produced by a cyclotron proton driver with a multi-foil uranium carbide target leads to the production of the radioactive isotopes of interest. Collisions take place within the Target Ion Source (TIS) unit, which is the core of the SPES project. During the operation, a periodic replacement of the TIS unit is required to maintain process efficiency. Automated systems can perform critical tasks under such highly radioactive conditions, including handling, transporting, and storing the TIS unit without human intervention. For this reason, a remote handling framework is currently being developed to meet the functional and safety requirements of the project. In this talk, the SPES target area is presented. Here, remote handling systems ensure the proper operation of the facility, preventing staff from being exposed to high dose rates or contamination problems.

**Presenter:** Dr LILLI, Giordano (INFN)

**Session Classification:** Morning session I

Contribution ID: **2** Type: **not specified**

# Undulator control systems installed inside the accelerator tunnel.

*Tuesday, 23 May 2023 14:10 (20 minutes)*

Experiences with undulator control systems installed inside the accelerator tunnel, using Beckhoff PLC, EtherCat fieldbus and Heidenhain absolute encoders will be documented. This includes different generations of soft PLCs and motor drivers which performed sometime in an unexpected way. Examples of projects realized using Beckhoff PLC will be used to highlight some open issues which we would like to discuss together with the rest of the participants.

**Presenter:** Dr BRÜGGER, Marc (PSI)

**Session Classification:** Afternoon session

Contribution ID: **3** Type: **not specified**

# MARWIN: Status quo on the semi-autonomous maintenance robot in the European XFEL

*Tuesday, 23 May 2023 11:00 (20 minutes)*

MARWIN is a research project between DESY in Hamburg and Hochschule 21 in Buxtehude, a local university of applied sciences. MARWIN is a concept of a semi-autonomous driverless transport vehicle that is used for measurement and inspection work in the European XFEL. The talk gives an overview of the status of the research project and the solutions that have been developed.

**Presenter:** Dr DEHNE, André (ASPERON)

**Session Classification:** Morning session II

Contribution ID: **4** Type: **not specified**

# MaxIV Laboratory: A Review of Automated and Self-Operating Processes

*Tuesday, 23 May 2023 11:20 (20 minutes)*

MaxIV Laboratory uses manipulators and robotic solutions on a daily basis for tasks such as sample delivery, detector positioning, blue lining, and working on automated measurement methods. This report will provide a review of automated process solutions, including both customer-made and in-house built applications."

**Presenter:** Dr ANDERSSON, Alina (MAXVI)

**Session Classification:** Morning session II

Contribution ID: **5** Type: **not specified**

# Androids for remote access: Activities and plans at DESY

*Tuesday, 23 May 2023 13:30 (20 minutes)*

**Presenter:** Dr WANZERNBERG, Rainer (DESY)

**Session Classification:** Afternoon session

Contribution ID: **7** Type: **not specified**

# SOLEIL status and challenge on automation and robotic

*Tuesday, 23 May 2023 13:50 (20 minutes)*

**Presenter:** Dr MUNOZ, Laura (SOLEIL)

**Session Classification:** Afternoon session

Contribution ID: **8** Type: **not specified**

# Developing Electronics for Radiation Environments

*Tuesday, 23 May 2023 11:40 (20 minutes)*

**Presenter:** Dr DANZECA, Salvatore (CERN)

**Session Classification:** Morning session II

Contribution ID: **9** Type: **not specified**

# Robotic Solutions for Maintenance and Quality Assurance

*Tuesday, 23 May 2023 14:30 (20 minutes)*

To decrease human exposure to hazards in hostile environments, Remote Handling (RH) tasks — the action of using a mechatronic device to execute remote-controlled operations — are needed. At CERN, the BE-CEM group is responsible for planning and safely performing RH operations for remote maintenance. Based on the feedback retrieved by the many remote robotic interventions done on the field during the last years, a code of practice framework for remote maintenance has been created to assist design engineers with guidelines to be followed for machine components design to ensure compatibility with remote interventions. Such best practices can be applied also outside CERN, indeed to any environment where robots must dynamically interact with a known and designable environment. This talk will present the status of these best practises and will highlight how they can be applied to new installations at CERN.

**Presenter:** BUONOCORE, Luca Rosario (CERN)

**Session Classification:** Afternoon session

Contribution ID: **10** Type: **not specified**

# Digital LEAPS workshop kick-off

*Tuesday, 23 May 2023 09:15 (15 minutes)*

**Presenter:** Dr CALVI, Marco (PSI)

**Session Classification:** Introduction

Contribution ID: **11** Type: **not specified**

# BE-CEM Introduction

*Tuesday, 23 May 2023 09:30 (20 minutes)*

**Presenter:** Dr MASI, Alessandro (CERN)

**Session Classification:** Introduction

Contribution ID: **12** Type: **not specified**

# 927 Lab visit

*Tuesday, 23 May 2023 15:30 (2 hours)*

**Session Classification:** Visiting the CERN laboratories

Contribution ID: **13** Type: **not specified**

# Elettra introduction

*Tuesday, 23 May 2023 10:20 (10 minutes)*

**Presenters:** Dr VUKOLOV, Andrey (ELETTRA); Dr GUZZI, Francesco (ELETTRA)

**Session Classification:** Morning session I

Contribution ID: **14** Type: **not specified**

# Welcome

*Tuesday, 23 May 2023 09:05 (10 minutes)*

Round table for introduction

**Session Classification:** Introduction