

**PSI** Center for Accelerator Science  
and Engineering

# IMMW23

## Welcome - Introductory Remarks

**06-11 October 2024, Bad Zurzach & PSI**

Stéphane Sanfilippo Paul Scherrer Institute

# Welcome to IMMW23 workshop



## Aargau (Aare province): Rivers & wellness & and castles



Birth : 1803

Surface : 1400 km<sup>2</sup>

Population : 695 000

Capital : Aarau

3 rivers: Aare, Reuss  
und Limmat

3 main regions

(Baden, Fricktal, Zurzach)

### International Committee

- Marco Buzio-CERN
- James Citadini - CNPEM
- Joseph DiMarco - FNAL
- Jui-Che Huang - NSRRC
- Animesh Jain - APS
- Gael Le Bec - ESRF
- Jordi Marcos - CELLS
- Edward Rial – BESSY
- Stéphane Sanfilippo- PSI
- Zachary Wolf - SLAC

### Local committee (PSI)

- Stéphane Sanfilippo (Chair)
- Silvia Bacher (Organisation)
- Stefan Keller (Finance)
- Rebecca Riccioli
- Carolin Zoller
- Giuseppe Montenero



# Second workshop at PSI of a triptych dedicated to magnet modeling and magnet tests



PAUL SCHERRER INSTITUT  
**PSI**

**HTS MODELLING WORKGROUP**

**CHART**  
Swiss Accelerator Research and Technology

hts2024.eu

## HTS Modelling Workshop 2024

June 10 – 13  
Parkhotel Bad Zurzach & PSI  
Switzerland

- Innovative methods and tools for modelling large-scale HTS systems
- Multiphysics problems, coupled & uncoupled
- Applications in large instruments, such as high field magnets, medical magnets and accelerator magnets

**IEEE CSC**  
Council on Superconductivity

**esas**  
SUPERCONDUCTIVITY FOR APPLIED SUPERCONDUCTIVITY

**RENAISSANCE FUSION**

**SIRMAPHI**  
SUPERCONDUCTING INSTRUMENTATION FOR MAGNETS

**COMSOL**

**QUANSCIENT**

10/06-13/06/2024

PAUL SCHERRER INSTITUT  
**PSI**

## 23rd International Magnetic Measurement Workshop (IMMW 23)

Oct 6 – 11, 2024  
Parkhotel Bad Zurzach & PSI  
Switzerland

<https://indico.psi.ch/event/15256/>

- Overview of Magnetic Measurements
- Sensors
- Measurement Reports
- Instruments
- Methods
- Fiducialization and Alignment

**CHART**  
Swiss Accelerator Research and Technology

**KY**

**metrolab**  
magnetic precision has a name

**SENIS**  
magnetic & current measurement

**HEXAGON**

06/10-11/10/2024

**PSI | EPFL**

## 5th Superconducting Magnets Test Facility Workshop (SMTF 5) and 3rd Instrumentation and Diagnostics for Superconducting Magnets Workshop (3 IDSM)

Mar 30 – April 04, 2025  
Parkhotel Bad Zurzach & PSI & SPC  
Switzerland

<https://indico.psi.ch/event/16393/>

- Status and future development of superconducting magnets test facilities
- Current and future diagnostic instrumentation, sensors, methods and data analysis techniques for LTS and HTS

**CHART**  
Swiss Accelerator Research and Technology

30/3-04/04 2025



## *Exchange among researchers and experts on:*

- *Equipment and techniques used to measure and characterize the magnetic fields,*
- *Equipment and techniques to fiduzialise (align) the magnets,*
- *A particular focus on accelerator magnets and insertion devices*

## *Topics covered:*

- *Overview of on-going projects around the world-wide measurement labs*
- *Sensors*
- *Fluxmeters*
- *Acquisition software, measurements and Fiducialization techniques*
- *Measurement Reports on magnets and insertion devices*

## **Context:** *4<sup>th</sup> generation SR light sources & Superconducting elements*

- *Magnetic measurement techniques of new types of accelerator magnets*
- *Last generation of Insertion Devices ( Higher Field, shorter period, smaller gap)*
- *Transfer of know how to industry*

# Time plan of the event

06 October 24 (Monday)-11 October 24 (Friday)



**Sunday evening :** Welcome reception & apéro, (Park Hotel)

**Monday & Tuesday :** Workshop day 1 & 2 (presentations)-Park Hotel

## Wednesday

- Transfert to PSI (Villigen)
- Morning : PSI presentation (Hans Braun) + **Poster session**
- Afternoon : Oral Session + Lab tour (3 hours)
- Evening : Social Dinner (Habsburg Castle) – Transfer back to Zurzach

## Thursday & Friday Morning

- Oral contributions - Park Hotel
- End of the workshop : Friday MIDDAY

# Conference Room for the oral sessions (Park Hotel)



Plenum room 150 m<sup>2</sup>

Concert layout 100 persons (without  
table)

- 2 screens
- moderation material

Coffee breaks just outside the room

Booth from sponsors outside the  
room



**No hybrid sessions**

# Many thanks to our sponsors !!!!



Many thanks to the sponsors for contribution and support



Swiss Accelerator  
Research and  
Technology



Workshop dinner:  
Habsburg castle (1020)



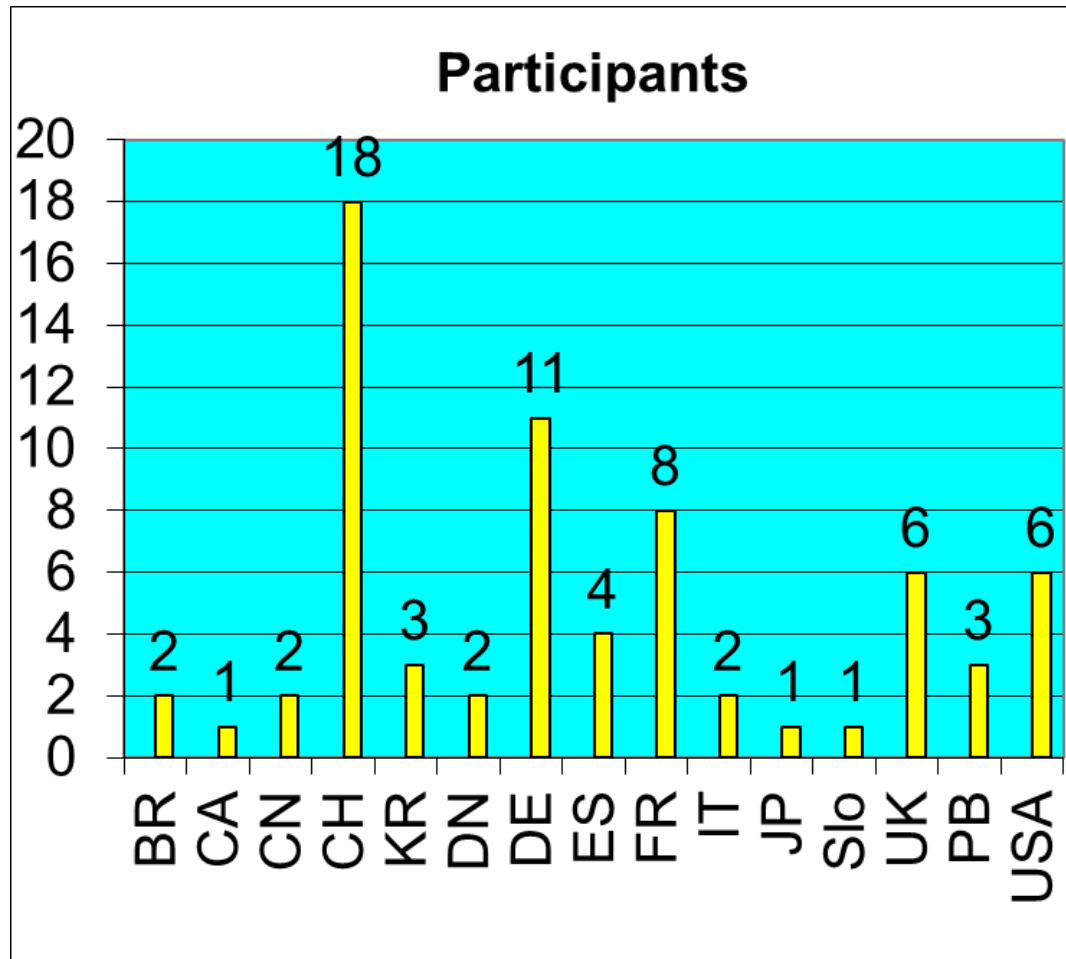
Talks + Booth at the conference room entrance

# Participants



**71 participants** (thank you for your interest !)

**15 countries** - An authentic international workshop





# Snapshot of the program



**Abstract : 47 abstracts\***

Submitted on indico

-34 talks (**20+10 min**)

-13 Posters

## 5 topics

-Overview of the activities

- Devices: Sensors & Fluxmeters

-Measurement reports

-Hardware and Software

-Application and techniques

**Posters session** of 1h30 at PSI  
Wednesday morning , preparation  
during coffee break (~30 min)

Lunch : 12h00-14h00

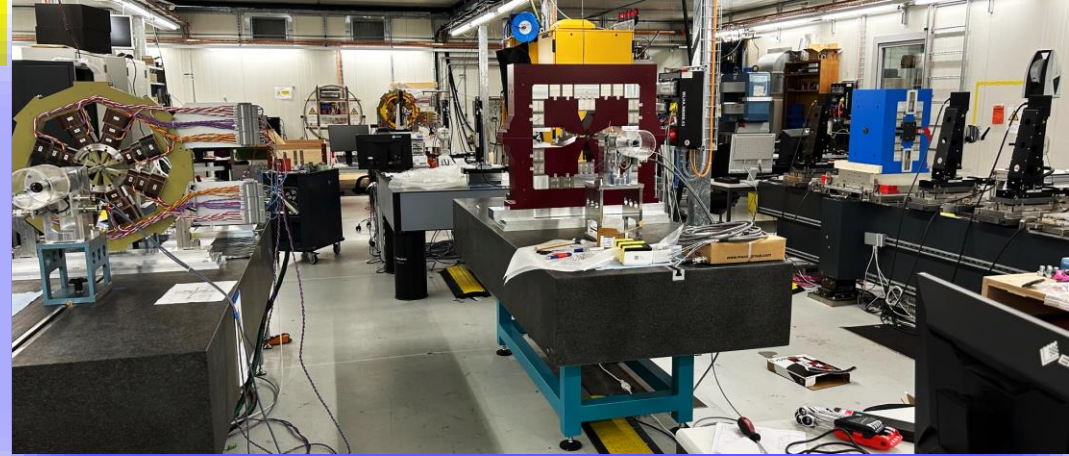
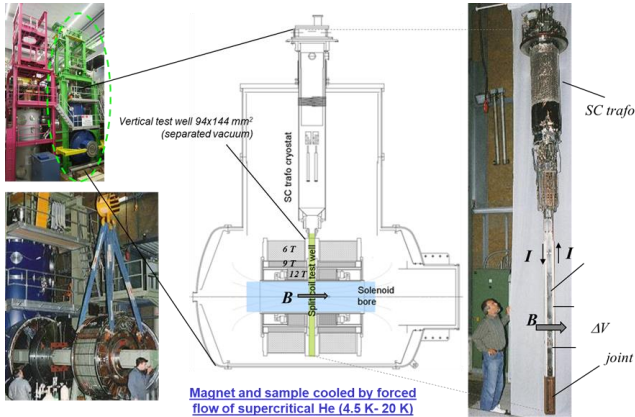
Sessions: 9h00-12h00

14h00-17h00

Date	Place	Program
Monday	Bad Zurzach	Overview
Tuesday	Bad Zurzach	<ul style="list-style-type: none"><li>• Devices</li><li>• Meas. Reports</li></ul>
Wednesday <ul style="list-style-type: none"><li>• Morning</li><li>• Morning</li><li>• Afternoon</li><li>• Evening</li></ul>	Paul Scherrer Institut	<ul style="list-style-type: none"><li>• PSI overview</li><li>• <b>Poster session</b></li><li>• Visits</li><li>• <b>Social Event</b></li></ul>
Thursday	Bad Zurzach	<ul style="list-style-type: none"><li>• Meas. Reports</li><li>• Hard Software</li><li>• Appli&amp;Tech</li></ul>
Friday <ul style="list-style-type: none"><li>• Morning</li><li>• Morning</li><li>• Morning</li><li>• Midday</li></ul>	Bad Zurzach	<ul style="list-style-type: none"><li>• Hard Software</li><li>• Photo</li><li>• Conclusions</li><li>• End of Workshop</li></ul>

*\*Linking the IMMW workshop to a peer review journal: Metrology (ISSN 2673-8244). special issue on 'Advances in Magnetic Measurements'- contact Prof. N. Sammut, [nicholas.sammut@um.edu.mt](mailto:nicholas.sammut@um.edu.mt)  
[https://www.mdpi.com/journal/metrology/special\\_issues/325603DE6K](https://www.mdpi.com/journal/metrology/special_issues/325603DE6K)*

## SULTAN (Swiss Plasma Center-EPFL)



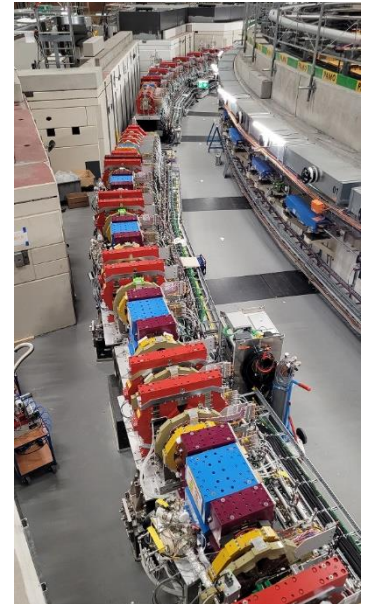
Magnetic measurement lab

## SC Magnet lab (CHARTMagDev)



## Swiss Light Source 2.0

4 stations  
groups of ~ 18 persons  
Visits : 3 hours in total



# Welcome to the Dorint Parkhotel Bad Zurzach



## Public WLAN – WiFi at Dorint Parkhotel Bad Zurzach

Free SMS login (valid 6 months)

Network: Park\_Hotel Bad Zurzach

Browser: [www.pwlan.ch](http://www.pwlan.ch)

Password via SMS



## Lunch and Dinner: Included!

Following meals are included in the registration fee:

Monday, Tuesday and Thursday: 12:00 lunch and 19:00 dinner

Wednesday: lunch at PSI and conference dinner at Habsburg (see *PSI day*)

Friday after the event: Sandwich lunch

Parkhotel will provide a form with 3 meal options for lunch and dinner:

- Meat
- Fish
- Vegetarian

Please mark your preference every day before the end of the coffee break in the morning.

## Hot springs (Thermalbad)

If you booked hotel accommodation at Parkhotel, you can enter the hot springs free of charge

# PSI day on Wednesday, October 9th, 2024



**09:15 Departure by bus in front of the Parkhotel to PSI**

Presentations and breaks in the morning and afternoon

**11:00 Poster Session:** Please bring your posters!

**15:15 PSI Lab visits:** Please wear flat shoes (no heels).

Please contact Stéphane or Silvia if you apply to one of the following categories, as access to certain areas may be forbidden:

Pregnant women; persons equipped with pacemaker, defibrillator, electronic medicine dispenser, hearing aid or metal implant, person with reduced mobility or otherwise incapacitated, minors under the age of 16.

**18:30 Departure in front of the PSI auditorium** for the conference dinner at Habsburg castle

**22:30 Departure from Habsburg** to Parkhotel Bad Zurzach





# IMMW16 at PSI : 26-29 October 2009



Louis Walckiers (CERN)  
head of the Committee till 2013

## International Advisory Committee

Heiner Brueck (DESY)  
Joseph DiMarco (FNAL)  
Joel Chavanne (ESRF)  
Stephane Sanfilippo (PSI)  
Animesh Jain (BNL)  
Louis Walckiers (CERN)  
Zach Wolf (SLAC)

***Four days of workshop***

***Participants : 79 from 12 countries***

***55 contributions of 15' minutes***



# IMMW at PSI .....15 years after



The SwissFEL large-scale facility

Aramis : 2016; Athos : 2018



Proton Therapy Center : Gantry III

Gantry III facility : 2018



Innovation Park (2024)



SLS2.0

Tunnel closure ( 12/2024)



# IMMW at PSI .....15 years after

2008



2013



October 2024



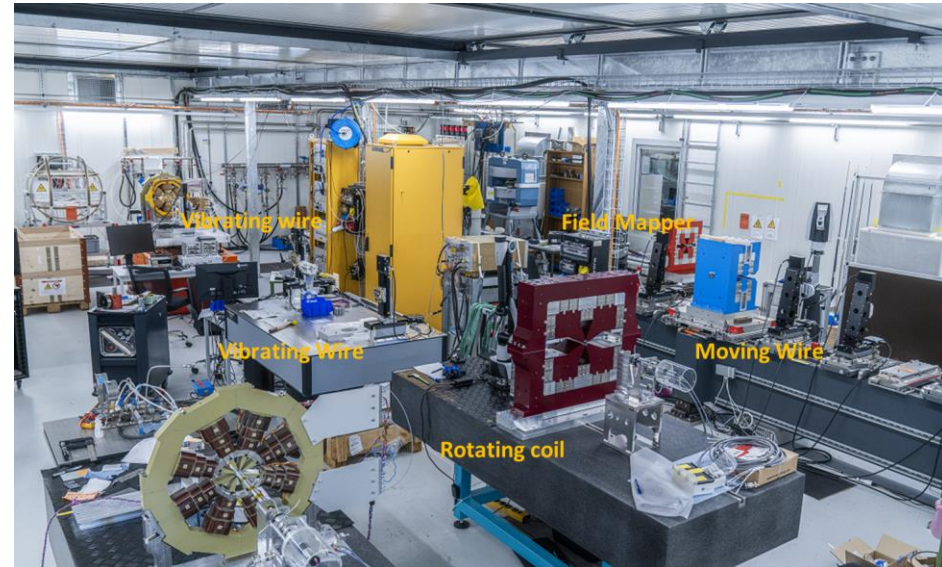


# IMMW at PSI ....15 years after

Magnet lab in 2009



Magnet labs in 2024

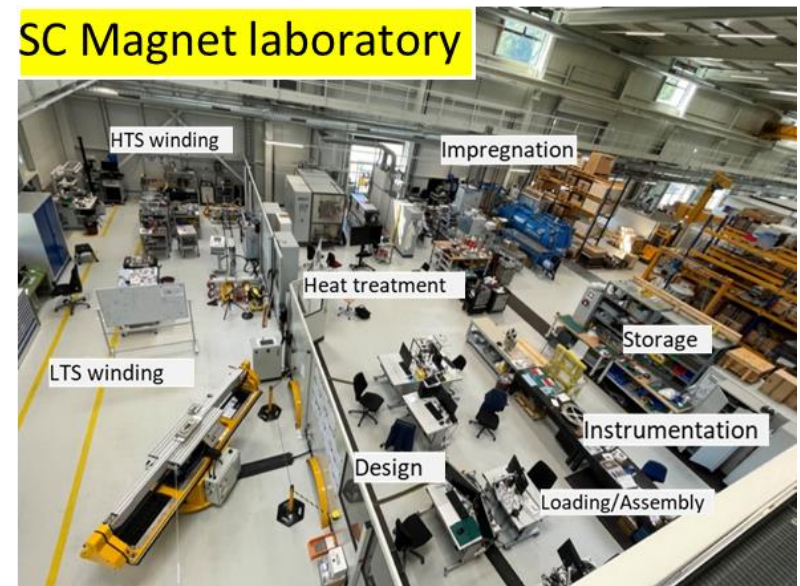


Magnet labs in 2024

Cryogen free magnet test station

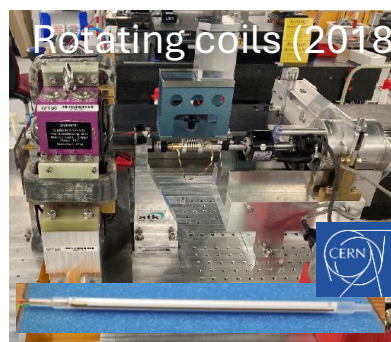
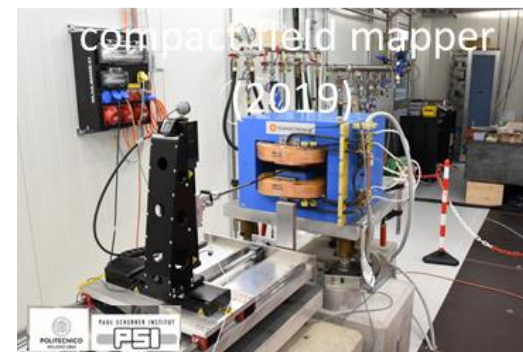
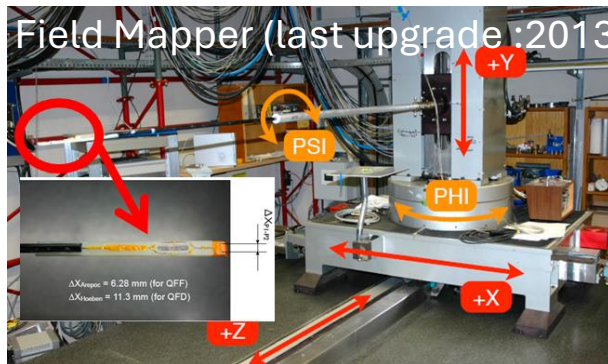
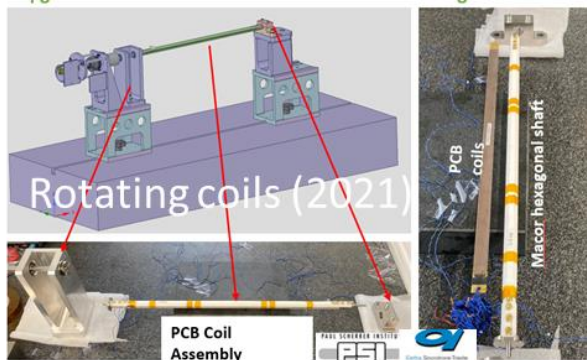


SC Magnet laboratory





# IMMW at PSI ....15 years after



Accuracy : 1/1000  
Reproducibility : 1/10000  
Axis : < 30 micrometers

# Specila thanks to Animesh, Joel, Vjeran, Zachary -(almost) retired



- Innovation in MM techniques
- Technical achievements
- Dedication and expertise
- Enrich our community→transmission to next generation (lectures)
- Contribution to the IMMW workshops



Thank you for enlightening us throughout all these years!

Wishing you a fulfilling and joyful retirement



