

# 4th Superconducting Magnet Test Facilities Workshop & 2nd Workshop on Instrumentation and Diagnostics for Superconducting Magnets



## Report of Contributions

Contribution ID: 1

Type: **not specified**

## Welcome to the 4th SMTS Workshop

*Monday, 24 April 2023 09:30 (20 minutes)*

**Presenter:** BAJKO, M.

Contribution ID: 2

Type: **not specified**

## **Applied Superconductivity in Italy. Challenges and plans for test infrastructures**

*Monday, 24 April 2023 09:50 (30 minutes)*

20 min. + 10 min. discussion

**Presenter:** Dr STATERA, M.

Contribution ID: 3

Type: **not specified**

## **HFM program. Challenges and Plans for test infrastructures**

*Monday, 24 April 2023 10:50 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Prof. SIEMKO, A.

Contribution ID: 4

Type: **not specified**

## **US MD Program- Challenges and plans for test Infrastructures**

*Monday, 24 April 2023 11:30 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Prof. PRESTEMON, S.

Contribution ID: 5

Type: **not specified**

## INFN Salerno test facility

*Monday, 24 April 2023 12:10 (40 minutes)*

30 min. + 10 min. discussion

**Primary author:** Dr D'AGOSTINO, Domenico

**Presenter:** Dr D'AGOSTINO, Domenico

Contribution ID: 6

Type: **not specified**

## **BNL test facility**

*Monday, 24 April 2023 13:50 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Prof. PIYUSH, J.

Contribution ID: 7

Type: **not specified**

## **CEA test facility**

*Monday, 24 April 2023 14:30 (50 minutes)*

40 min. + 10 min. discussion

**Presenter:** Prof. N. COMMAUX / P. DE ANTONI



Contribution ID: 8

Type: **not specified**

## **CERN test facility SM18**

*Monday, 24 April 2023 15:20 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** WILLERING, Gerard (CERN)

Contribution ID: 9

Type: **not specified**

## **CERN test facility HL-LHC IT STRING**

*Monday, 24 April 2023 16:30 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Ms BAJKO, M.

Contribution ID: **10**

Type: **not specified**

## **FNAL test facility**

*Monday, 24 April 2023 17:10 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Prof. BALDINI, M.

Contribution ID: **11**

Type: **not specified**

## **FREIA test facility**

*Monday, 24 April 2023 17:50 (40 minutes)*

30 min. + 10 min.

**Presenter:** BAGNI, Tommaso (Uppsala University)

Contribution ID: 12

Type: **not specified**

## **GSI test facility at GSI**

*Tuesday, 25 April 2023 08:30 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr SZWANGRUBER, A.

Contribution ID: 13

Type: **not specified**

## **GSI Test facility at CERN**

*Tuesday, 25 April 2023 09:10 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr CHIUCHIOLO, A.

Contribution ID: 14

Type: **not specified**

## **KEK test facility**

*Tuesday, 25 April 2023 09:50 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr SUZUKI, K.

Contribution ID: 15

Type: **not specified**

## **LASA test facility**

*Tuesday, 25 April 2023 10:30 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** STATERA, Marco (Istituto Nazionale di Fisica Nucleare)



Contribution ID: **16**

Type: **not specified**

## **EPFL test facility at PSI**

*Tuesday, 25 April 2023 11:40 (30 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr BAJAS, Hugo (EPFL)

Contribution ID: 17

Type: **not specified**

## **Test stand for superconducting magnets cooled with cryocoolers and development of cryogenic pulsating heat pipes at PSI**

*Tuesday, 25 April 2023 12:10 (40 minutes)*

30 min. + 10 min. discussion

**Presenters:** DUDA, Michal (PSI); Dr ZOLLER, C.

Contribution ID: **18**

Type: **not specified**

## **Status of the EDIPO2 test facility**

*Tuesday, 25 April 2023 14:00 (30 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr SARASOLA, X.

Contribution ID: 19

Type: **not specified**

## **Challenges of test infrastructures for fusion in the US**

*Tuesday, 25 April 2023 14:30 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** VELEV, Gueorgui (Fermilab)

Contribution ID: **20**

Type: **not specified**

## **He availability**

*Tuesday, 25 April 2023 15:10 (40 minutes)*

30 min. + 10 min. discussion

**Presenter:** Dr FERRAND, Frederic

Contribution ID: 21

Type: **not specified**

## **ROUND TABLE discussions : what infrastructures do we need to development for the future programs?**

*Tuesday, 25 April 2023 16:20 (1h 40m)*

Contribution ID: 22

Type: **not specified**

## **US Magnet Development Program needs in instrumentation and diagnostics**

*Wednesday, 26 April 2023 09:15 (25 minutes)*

**Presenter:** Dr PRESTEMON, Soren (LBNL)

Contribution ID: 23

Type: **not specified**

## **Mechanical diagnostics for transients, precursors (acoustic emission, accelerometers, strain sensor, fiber optics (I))**



Contribution ID: 24

Type: **not specified**

**Mechanical diagnostics for transients, precursors  
(acoustic emission, accelerometers, strain sensor,  
fiber optics (II))**

Contribution ID: 25

Type: **not specified**

**Mechanical diagnostics for transients, precursors  
(acoustic emission, accelerometers, strain sensor,  
fiber optics (III))**

Contribution ID: 26

Type: **not specified**

## **Innovative electronics, data acquisition solutions, advanced diagnostics**

Contribution ID: 27

Type: **not specified**

## **Novel quench detection and localization methods (optical, ultrasonic, RF, etc.)**

Contribution ID: 28

Type: **not specified**

## **Novel quench detection and localization methods (optical, ultrasonic, RF)**

Contribution ID: 29

Type: **not specified**

## **Magnetic measurement methods (harmonic field probes, quench antennas, other magnetic sensors)**

Contribution ID: **30**

Type: **not specified**

## **bus departure to Salerno, University Campus**

Contribution ID: **31**

Type: **not specified**

## **Registration for IDSM**

*Wednesday, 26 April 2023 08:50 (10 minutes)*



Contribution ID: 32

Type: **not specified**

## **Instrumentation and diagnostics for Test Facility Dipole at Fermilab**

*Wednesday, 26 April 2023 09:40 (25 minutes)*

**Presenter:** Dr VELEV, George (FNAL)

Contribution ID: **33**

Type: **not specified**

## Visit to THOR facility

Contribution ID: **34**

Type: **not specified**

## **buffet lunch**

Contribution ID: 35

Type: **not specified**

## **CERN needs on magnetic measurement instrumentation**

*Wednesday, 26 April 2023 10:05 (25 minutes)*

**Presenter:** RUSSENSCHUCK, Stephan (CERN)

Contribution ID: **36**

Type: **not specified**

## **talk 04**

**Presenter:** Dr HARTWIG, Zach (CSF/MIT)

Contribution ID: 37

Type: **not specified**

## **CERN needs for instrumentation and diagnostics**

*Wednesday, 26 April 2023 11:00 (25 minutes)*

**Presenter:** WILLERING, Gerard (CERN)

Contribution ID: **38**

Type: **not specified**

## **Electric aircraft diagnostics needs**

*Wednesday, 26 April 2023 11:25 (25 minutes)*

**Presenters:** Dr FALLOUH, Christian (Airbus); FALLOUH, Christian (Airbus upnext)

Contribution ID: 39

Type: **not specified**

## Round table discussion

*Wednesday, 26 April 2023 11:50 (40 minutes)*

Round table discussion: Prestemon, Minervini, Siemko, Russenschuck, Amm

**Presenter:** PRESTEMON, SIEMKO, RUSSENSCHUCK, VELEV, MARCHEVSKY, STOYNEV



Contribution ID: 40

Type: **not specified**

## **Analysis of mechanical transients and energy release in CCT magnets**

**Presenter:** Dr MARCHEVSKY, Maxim (LBNL)

**Session Classification:** Mechanical diagnostics for transients and precursors

Contribution ID: 41

Type: **not specified**

## **Development and advancement in vibration measurements using acoustics**

Contribution ID: 42

Type: **not specified**

## **Development and advancement in vibration measurements using acoustics**

*Thursday, 27 April 2023 09:00 (20 minutes)*

**Presenter:** DALY, Michael (Paul Scherrer Institute)

**Session Classification:** Mechanical diagnostics for transients and precursors

Contribution ID: 43

Type: **not specified**

## **Analysis of mechanical transients and energy release in CCT magnets**

*Thursday, 27 April 2023 09:20 (20 minutes)*

**Presenter:** MARCHEVSKY, Maxim (LBNL)

**Session Classification:** Mechanical diagnostics for transients and precursors

Contribution ID: 44

Type: **not specified**

## **Fast strain measurements in superconducting magnets**

*Thursday, 27 April 2023 09:40 (20 minutes)*

**Presenter:** Dr GUINCHARD, Michael (CERN)

**Session Classification:** Mechanical diagnostics for transients and precursors

Contribution ID: 45

Type: **not specified**

## **Discussion on mechanical diagnostics for transients and precursors**

*Thursday, 27 April 2023 10:00 (30 minutes)*

**Session Classification:** Mechanical diagnostics for transients and precursors

Contribution ID: 46

Type: **not specified**

## **Advanced diagnostics on precursors and motion using voltage signals and quench antenna**

*Thursday, 27 April 2023 11:10 (20 minutes)*

**Presenter:** WILLERING, Gerard (CERN)

**Session Classification:** Novel diagnostic techniques and data analysis

Contribution ID: 47

Type: **not specified**

## **Digital transformation / Digital twin in mechanical measurements applied to superconducting magnets**

*Thursday, 27 April 2023 10:50 (20 minutes)*

**Presenter:** Dr DE FRUTOS, Oscar Sacristan (CERN)

**Session Classification:** Novel diagnostic techniques and data analysis



Contribution ID: 48

Type: **not specified**

## **Advanced diagnostics for conductor damage**

*Thursday, 27 April 2023 11:30 (20 minutes)*

**Presenter:** Dr KEIJZER, Ruben (CERN)

**Session Classification:** Novel diagnostic techniques and data analysis

Contribution ID: 49

Type: **not specified**

## **Discussion on novel diagnostic techniques and data analysis**

**Session Classification:** Novel diagnostic techniques and data analysis

Contribution ID: 50

Type: **not specified**

## **FBG mesh for distributed strain sensing**

*Thursday, 27 April 2023 14:30 (20 minutes)*

**Presenter:** KRAVE, Steven (APS-TD)

**Session Classification:** Fiberoptic diagnostics for strain and quench

Contribution ID: 51

Type: **not specified**

## **Fiber optic sensing for strain and temperature**

*Thursday, 27 April 2023 14:10 (20 minutes)*

**Presenter:** Dr BALDINI, Maria (FNAL)

**Session Classification:** Fiberoptic diagnostics for strain and quench

Contribution ID: 52

Type: **not specified**

## **Fiber-optic quench detection for CORC® cables and magnets**

**Presenter:** Dr LUO, Linquin (LBNL)

**Session Classification:** Fiberoptic diagnostics for strain and quench

Contribution ID: 53

Type: **not specified**

## **FBG quench detection sensors**

*Thursday, 27 April 2023 14:50 (20 minutes)*

**Presenter:** Dr HANEEF, Shahna (Robinson R.I.)

**Session Classification:** Fiberoptic diagnostics for strain and quench

Contribution ID: 54

Type: **not specified**

## **Discussion on fiberoptic techniques**

*Thursday, 27 April 2023 15:10 (30 minutes)*

**Session Classification:** Fiberoptic diagnostics for strain and quench

Contribution ID: 55

Type: **not specified**

## **Methods and instrumentation for insulation defects measurements and electrical issues with superconducting magnets and circuits.**

*Thursday, 27 April 2023 16:10 (20 minutes)*

**Presenter:** BEDNAREK, Mateusz (CERN)

**Session Classification:** Innovative electronics and devices, electrical diagnostics



Contribution ID: 56

Type: **not specified**

## **Classifying the electromagnetic behavior of a series of superconducting magnets**

*Thursday, 27 April 2023 16:30 (20 minutes)*

**Presenter:** RAVAIOLI, Emmanuele (CERN)

**Session Classification:** Innovative electronics and devices, electrical diagnostics

Contribution ID: 57

Type: **not specified**

## Advances in cryo-electronics

*Thursday, 27 April 2023 16:50 (20 minutes)*

**Presenter:** TURQUETI, Marcos De Azambuja (Lawrence Berkeley National Laboratory)

**Session Classification:** Innovative electronics and devices, electrical diagnostics

Contribution ID: 58

Type: **not specified**

## **Discussion on innovative electronics and devices, electrical diagnostics**

*Thursday, 27 April 2023 17:10 (30 minutes)*

**Session Classification:** Innovative electronics and devices, electrical diagnostics

Contribution ID: 59

Type: **not specified**

## **Closing remarks /summary**

*Friday, 28 April 2023 13:00 (20 minutes)*

**Presenter:** GERARD WILLERING / MAXIM MARCHEVSKY

**Session Classification:** Magnetic measurement methods

Contribution ID: **60**

Type: **not specified**

## **Quench antenna development at CERN**

*Friday, 28 April 2023 11:50 (20 minutes)*

**Presenter:** Dr FISCARELLI, Lucio (CERN)

**Session Classification:** Magnetic measurement methods

Contribution ID: **61**

Type: **not specified**

## **Quench antennas and non-rotating probe development**

*Friday, 28 April 2023 12:10 (20 minutes)*

**Presenter:** Dr DIMARCO, Joe (FNAL)

**Session Classification:** Magnetic measurement methods

Contribution ID: **62**

Type: **not specified**

## **Discussion on magnetic measurement methods**

*Friday, 28 April 2023 12:30 (30 minutes)*

**Session Classification:** Magnetic measurement methods

Contribution ID: 63

Type: **not specified**

## **Quench conditioning device. Vibrational quench conditioning**

*Friday, 28 April 2023 08:30 (20 minutes)*

**Presenter:** Dr STOYNEV, Stoyan (FNAL)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).



Contribution ID: **64**

Type: **not specified**

## **Wire-based and thermocouple-based QD**

*Friday, 28 April 2023 08:50 (20 minutes)*

**Presenter:** BYKOVSKIY, Nikolay (EPFL Swiss Plasma Center)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 65

Type: **not specified**

## **Ultrasonic and RF quench diagnostics + Active current control**

*Friday, 28 April 2023 09:10 (30 minutes)*

**Presenter:** MARCHEVSKY, Maxim (LBNL)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: **66**

Type: **not specified**

## **Hall-probe-based QD and QC for CORC**

*Friday, 28 April 2023 11:00 (20 minutes)*

**Presenter:** Dr TEYBER, Reed (LBNL)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 67

Type: **not specified**

## **MEMS microphones for QD in fusion cables**

*Friday, 28 April 2023 10:00 (20 minutes)*

**Presenter:** Dr MOORE, Peter (Tufts University)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 68

Type: **not specified**

## **Impregnation damage and quench monitoring using time-domain reflectometry**

*Friday, 28 April 2023 10:40 (20 minutes)*

**Presenter:** Dr SEOK LEE, Geon (LBNL)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: **69**

Type: **not specified**

## **Electric aircraft diagnostics needs**

**Presenter:** Dr FALLOUH, Christian (Airbus)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 70

Type: **not specified**

## **talk03**

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 71

Type: **not specified**

## **Discussion on novel quench detection and localization methods**

*Friday, 28 April 2023 11:20 (30 minutes)*

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).



Contribution ID: 72

Type: **not specified**

## Welcome from Department of Physics

**Presenter:** Prof. DE PASQUALE, Salvatore

**Session Classification:** Visit of THOR facility @ Fisciano University Campus

Contribution ID: 73

Type: **not specified**

## **Welcome and survey of Applied Superconductivity activities (past and future)**

*Wednesday, 26 April 2023 14:30 (30 minutes)*

**Presenter:** GAMBARDELLA, Umberto (Istituto Nazionale di Fisica Nucleare)

**Session Classification:** Visit to THOR test facility

Contribution ID: 74

Type: **not specified**

## **new projects in the applied superconductivity**

**Presenter:** Dr TBD, TBD

**Session Classification:** Visit to THOR test facility

Contribution ID: 75

Type: **not specified**

## Visit to the THOR site

*Wednesday, 26 April 2023 15:00 (1h 30m)*

**Presenter:** STAFF

**Session Classification:** Visit to THOR test facility

Contribution ID: 77

Type: **not specified**

## **An advanced instrumentation lab for superconducting cables and magnets**

*Thursday, 27 April 2023 11:50 (20 minutes)*

**Presenter:** ESPOSITO, Antonio

**Session Classification:** Novel diagnostic techniques and data analysis

Contribution ID: 78

Type: **not specified**

## **Research on no-insulation high-temperature superconductor magnet for quench simulation, imitation, protection, and detection**

*Friday, 28 April 2023 09:40 (20 minutes)*

**Presenter:** Dr BANG, Jeseok (NHMFL)

**Session Classification:** Novel quench detection and localization methods (optical, ultrasonic, RF, etc.).

Contribution ID: 79

Type: **not specified**

## **IDSMS' 02 Welcome**

*Wednesday, 26 April 2023 09:00 (15 minutes)*

**Presenters:** MARCHEVSKY, Maxim (LBNL); WILLERING, Gerard (CERN)