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

Monday, 24 April 2023 - Friday, 28 April 2023

Hotel Ariston, Paestum (SA), Italy

Scientific Programme

The programs of the workshops are sequential: on April 24-26 it will take place the SMTF 4° workshop, soon followed by the 2° Workshop IDSM on April 26-28 with an overlapped day (April 26).

SMTF

Following a lengthy break since the 3rd International Workshop on Superconducting Magnet Test Facility (SMTF 03) at the FREIA Laboratory in Uppsala (S), in 2019, we are pleased to announce the 4th Workshop on Superconducting Magnet Test Facility (SMTF 04), which will take place on April 24-26, 2023, in Paestum (Salerno), Italy. This time, we are teaming up with the Workshop Instrumentation and Diagnostics for Superconducting Magnets (IDSM'02) event, which will be organised at the same location from Apr 26-28, 2023. By having the two Workshops side by side, we aim to ease participation for those colleagues who may be interested in attending both events, and at the same time enrich the overall experience and foster new collaborations between the two communities. Please note, however, that the core agenda of the SMTS Workshop will focus strictly on the status of the test facilities, their road map, interest in investing and getting developed for their participation in different projects, and will be defined independently by the IDSM Organising Committee. The topical part of the SMTF workshop will be abandoned this time, to give the floor to the workshop dedicated to novel diagnostics and instrumentation. More standard measurements and systems – presented in the previous editions of the SMTF – will instead be part of an online training program that we had planned for a larger audience (separate from the workshop, however). The participants will be asked to deliver a presentation (typically a 20 min talk + 10 min discussion). We will be soliciting presentations on the following topics:

• Status report on the test facility, regarding equipment and operational conditions.
• List of relevant projects for the laboratory that are a motor for operation or further investment.
• Plans for upgrading/development of the test facility.

Following the success of the SMTS Workshops, we sincerely hope that you may be interested in supporting this initiative, going forward, by accepting our invitation and making a valuable contribution to the Workshop program. Additional information regarding travel, accommodation, registration, and presentation formats will be sent at a later date. We are looking forward to your participation!

IDSM

Following a lengthy break since the IDSM’01 Workshop in Berkeley, CA, in 2019, we are pleased to announce the Second Workshop on Instrumentation and Diagnostics for Superconducting Magnets (IDSM'02), which will take place on April 26-28, 2023, in Paestum (Salerno), Italy. This time, we are teaming up with the Workshop on Superconducting Magnet Test Facility, which will be organised at the same location, at the earlier date of Apr 24-26, 2023. By having the two Workshops side by side, we aim to ease participation for those colleagues who may be interested in attending both events, and at the same time enrich the overall experience and foster new collaborations between the two communities. Please note, however, that the core agenda of the IDSM Workshop will focus strictly on novel instrumentation and diagnostics and will be defined independently by the IDSM Organising Committee. Workshop participation is by invitation only, and most participants will be asked to deliver a presentation (typically a 20 min talk + 10 min discussion, although shorter presentations will be considered as well). We will be soliciting presentations on the following topics:

• Diagnostics for transient strain energy releases, quench precursors and sources of training in LTS magnets (acoustic emission, accelerometers, strain sensors, FBGs, etc.).
• Diagnostic challenges for HTS magnets in HEP and Fusion: conductor defects, damage mechanisms, current sharing.
• Novel quench detection and localisation methods (optical, ultrasonic, RF, etc.).
• Magnetic measurement methods (harmonic field probes, quench antennas, other magnetic sensors).

• Data analysis and management; processing diagnostic “big data” with ML/AI.
• Innovative electronics and data acquisition solutions.
• Any innovative ideas for new kinds of diagnostic instrumentation, sensors, and data analysis techniques.
Following the success of the first IDSM Workshop, we sincerely hope that you may be interested in supporting this initiative, going forward, by accepting our invitation and making a valuable contribution to the Workshop program. Additional information regarding travel, accommodation, registration, and presentation formats will be sent at a later date. We are looking forward to your participation!

On-line training: Lectures on Superconducting Magnet test stands, Magnet protections and Diagnostics

For this series of twenty lectures, speakers from worldwide laboratories (BNL, CEA, CERN, EPFL, FNAL, IFJ PAN, LBNL, Tampere) will cover the main aspects of a superconducting magnet test stand (cryogenics systems, power supplies, current leads). A second part will then be dedicated to the design and use of magnet protection systems (high voltage electrical integrity checks, energy extraction, strip heaters, CLIQ, quench detection) with emphasis on the differences between LTS and HTS magnets. The third part will introduce the various measurement techniques related to magnet health monitoring (magnetic, thermal, mechanical behaviors and AC loss). At last, a dedicated talk will introduce the problematic of the protection of large fusion superconducting coils.
https://indico.cern.ch/event/1281454/