Perspectives with High Magnetic Fields at Neutron Sources

Report of Contributions

Contribution ID : **4** Type : **Oral**

Next generation asymmetric horizontal SANS magnet for quantum phenomena in nanostructures and correlated electron systems

Wednesday, 2 November 2022 15:00 (30)

The main goal of the project "Next generation asymmetric horizontal SANS magnet for quantum phenomena in nanostructures and correlated electron systems" is the development of a high performance compensated asymmetric horizontal magnet optimized for small angle neutron scattering (SANS), reflectometry and the resonance spin echo technique MIEZE [1] (Modulation of IntEnsity with Zero Effort). With an asymmetric coil geometry allowing for the use of polarized neutrons and polarization analysis, this superconducting magnet is dedicated for research on quantum phenomena in nanostructures, strongly correlated electron systems and superconductivity [2]. NSHM will provide a central magnetic field of ~10T with stray fields down to 10G at 1m distance, and parallel and perpendicular access with ±10° scattering cones.

The magnet will be optimized for lowest possible parasitic background scattering with the least possible amount of material in the beam. Together with a dedicated integrated cryostat, it will offer a wide temperature range of 50 mK to 350 K. Only the use of modern high-temperature superconducting (HTS) technology will allow the fringe field compensation of a split coil magnet as large as NHSM at reasonable weight (~750 kg) and size (~75 cm x 75 cm) enabling the use on a large number of beamlines at MLZ with minimized interference and stray fields. The magnet will be a pioneering project using HTS technology without cryogenic liquids (dry system).

This project proposal is based on the results achieved by two feasibility studies performed in collaboration with the companies Bilfinger-Noell (Germany) and HTS-110 (New Zealand), funded by BMBF.

[1] J. Jochum, A. Wendl, T. Keller and C. Franz, Measurement Science and Technology 31, 3 (2020) 035902, DOI: 10.1088/1361-6501/ab5358

S. Mühlbauer et al., Reviews of Modern Physics 91 (2019) 015004, DOI: DOI: 10.1103/RevModPhys.91.015004

Presenter(s) : Dr. MÜHLBAUER, Sebastian (FRM II — Forschungs-Neutronenquelle Heinz Maier-Leibnitz)

Session Classification : Inspiration for the use of high-B fields

Track Classification : Inspiration for the use of high-B fields

Contribution ID : **5** Type : **Oral**

Exploring the ways in which superconductivity breaks down close to the upper critical field

Wednesday, 2 November 2022 14:30 (30)

Presenter(s) : Prof. BLACKBURN, Elizabeth (Lund University)

Session Classification : Inspiration for the use of high-B fields

Track Classification : Inspiration for the use of high-B fields

Contribution ID : **6** Type : **Oral**

Probing electronic correlations of quantum matter at high magnetic fields

Wednesday, 2 November 2022 16:00 (30)

Strong electronic correlations are intimately related to the emergence of a plethora of exotic metallic quantum states such as unconventional superconductivity, electronic-nematic states, charge stripe- and loop order, hidden order and most recently topological states of matter such as skyrmion lattices, topological Kondo insulators and semimetals and chiral superconductors.

Here neutron spectroscopy has been tremendously successful probe for understanding the underlying spin correlations, which are thought to mediate many of these ground states. More recently, we and others have demonstrated that in strongly correlated metals the measurements spin dynamics can be also used to determine the so-called Lindhard susceptibility, which is directly related to the underlying electronic band structure. This provides unique opportunities to study the electronic structure of metallic quantum states at the extremes of high magnetic fields. This is notably so, because angle-resolved photoemission spectroscopy (ARPES) cannot be carried out in magnetic fields, and quantum oscillations measurements do not reveal full electronic structure information. Here I will discuss a few quantum materials that are candidates for such measurements at high-magnetic fields.

Presenter(s) : Dr. JANOSCHEK, Marc (PSI — Paul Scherrer Institut)

Session Classification : Inspiration for the use of high-B fields

Track Classification : Inspiration for the use of high-B fields

Contribution ID : **7** Type : **Oral**

Contribution TBC

Wednesday, 2 November 2022 16:30 (30)

Presenter(s) : Dr. SCHNEIDEWIND, Astrid (MLZ - JSNS)

Session Classification : Inspiration for the use of high-B fields

Track Classification : Inspiration for the use of high-B fields

Contribution ID : **8** Type : **Oral**

Contribution TBC

Wednesday, 2 November 2022 17:00 (30)

Presenter(s) : Dr. FELSER, Claudia (MPI — Max Planck Institute for Chemical Physics of Solids)

Session Classification : Inspiration for the use of high-B fields

Track Classification : Inspiration for the use of high-B fields

Contribution ID : **9** Type : **Oral**

Neutron scattering experiments with pulsed magnetic fields — today and tomorrow

Thursday, 3 November 2022 08:30 (30)

The ability to reach high magnetic fields for neutron scattering experiments is invaluable to drive systems through phase transitions and thereby explore more quantum magnetic states. The theoretical description of the magnetic field in a material is exactly known and it is possible to accurately tune the field strength during an experiment. However, when performing neutron scattering experiments using traditional cryomagnets, the field strength is limited to around 15 T.

For higher fields, we need pulsed magnets and in my talk I will give an overview of the state-of-the-art at different neutron facilities. I will tell you about my experience using this technique and discuss the challenges we face before pulsed fields can become more user-friendly and accessible for neutron scattering experiments. I will also discuss desired capabilities for future setups, both in terms of maximum field strength, scattering geometries and integrated measuring times but also in combination with dilution temperatures or pressure as well as the possibility for specialised pulsed-field beamlines and inelastic experiments.

Presenter(s) : Dr. FOGH, Ellen (EPFL — École Polytechnique Fédérale de Lausanne)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **10** Type : **Oral**

Metamagnetism and superconductivity in UTe2

Thursday, 3 November 2022 09:00 (30)

In 2019, unconventional superconductivity was observed in the heavy-fermion paramagnet UTe2 and a spin-triplet nature of the superconducting pairing has been proposed for this compound initially presented as a nearly-ferromagnet [1,2]. Soon after, multiple superconducting phases were found to develop near magnetic transitions in UTe2 under intense magnetic fields and high pressures [3-8].

Here, I will present a selection of results performed within a French-Japanese collaboration on UTe2. Experiments under combined extreme conditions showed that multiple superconducting phases can be induced by a magnetic field, sometimes coupled with pressure, in the vicinity of metamagnetic transitions [4,6,8] (see also [5,7]). From inelastic neutron scattering at zero magnetic field, we evidenced the presence of quasi-two-dimensional antiferromagnetic fluctuations in UTe2, which is also a two-legs magnetic ladder [9] (see also [10,11]). Their gapping in the zero-field superconducting phase indicates that these fluctuations may play a role in the superconducting mechanism [12-13].

Neutron scattering is a unique tool to microscopically unravel the role of magnetism, and particularly of the magnetic fluctuations, for the development of unconventional superconductivity in correlated-electrons materials. However, metamagnetism in UTe2 occurs at fields far beyond what is feasible today for inelastic neutron scattering (fields up to 36 T at ambient pressure, or up to 15-20 T under pressure may be needed). As perspectives, I will discuss how the extension of neutron techniques to higher magnetic fields, possibly coupled with very low temperatures and/or high pressures, will constitute a milestone to understand the interplay between magnetism and superconductivity in materials as UTe2.

[1] Ran et al., Science 365, 684 (2019).

Aoki et al., J. Phys. Soc. Jpn. 88, 043702 (2019).

Braithwaite et al., Commun. Phys. 2, 147 (2019).

Knebel et al., J. Phys. Soc. Jpn. 88, 063707 (2019).

Ran et al., Nat. Phys. 15, 1250 (2019).

Knafo et al., Commun. Phys. 4, 40 (2021).

Aoki et al., J. Phys. Soc. Jpn. 89, 053705 (2020).

Valiska et al., Phys. Rev. B 104, 214507 (2021).

Knafo et al., Phys. Rev. B 104, L100409 (2021).

Duan et al., Phys. Rev. Lett. 125, 237003 (2020).

Butch et al., npj Quantum Materials 7, 39 (2022).

Duan et al., Nature 600, 636 (2021).

Raymond et al., J. Phys. Soc. Jpn. 90, 113706 (2021).

Presenter(s) : Dr. KNAFO, William (LNCMI — Laboratoire National des Champs Magnétiques Intenses)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **11** Type : **Oral**

Quantum material frontiers at 100 T

Thursday, 3 November 2022 09:30 (30)

Presenter(s) : Dr. MOLL, Philip (Max-Planck-Institute for the Structure and Dynamics of Matter)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **12** Type : **Oral**

Pulsed magnetic fields for neutron diffraction: technical challenges and scientific opportunities

Thursday, 3 November 2022 11:00 (30)

The last two decades have seen the demonstration of the feasibility of neutron diffraction in fields as high as 40 T with the development of dedicated pulsed field devices based either on short or long duration pulsed magnets [1, 2]. These breakthroughs have allowed to extend the field limits beyond current superconducting (15 T split, 17 T solenoid) and resistive installations already available at radiation sources and have allowed to reveal novel field induced states. Outstanding studies are the determination of the magnetic structures of the magnetization plateaus phases in the frustrated magnetic systems TbB4 and CdCr2O4 [1, 3], the spin density wave state of URu2Si2 [4] or the field-induced magnon condensate in the spin-dimerized system Sr3Cr2O8 [5]. However, diffraction measurements in high magnetic field environment remain challenging, and successful campaigns at neutron sources require adequate topic selection and expert preparation.

Here, I will present an overview of the 40 T pulsed field cryomagnet developed by the LNCMI-Toulouse, the ILL-Grenoble, and the CEA-Grenoble, illustrated by a selection of results obtained on the triple-axis CRG-CEA spectrometer IN22 at the ILL. This will give me the opportunity to discuss technical challenges and improvements required to pave the way for the routinely investigations of materials bearing small magnetic moments like, e.g., high-Tc superconductors or quantum spin systems.

[1] S. Yoshii et al., Phys. Rev. Lett. 103, 077203 (2009).

F. Duc, et al., Rev. Sci. Instrum. 89, 053905 (2018).

M. Matsuda et al., Phys. Rev. Lett. 104, 047201 (2010).

W. Knafo et al., Nature Comm. 7, 13075 (2016).

A. Gazizulina et al., Phys. Rev B 104, 064430 (2021).

Presenter(s) : Dr. DUC, Fabienne (LNCMI — CNRS)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **13** Type : **Oral**

Insights from developing a pulsed field system for SwissFEL

Thursday, 3 November 2022 10:30 (30)

The combination of modern high brilliance X-ray sources with pulsed magnetic fields allows investigation of correlated states such as charge density waves in the cuprates [1], or detection and analysis of structural phase transitions [2]. As the signatures of these phenomena are often weak (less than 1 ppm) compared to the structural information and can be distributed over wide ranges of reciprocal space, their detection requires integration over many pulses or longer timespans. This technical constraint leads to a focus on the the repetition rate or duty cycle of pulsed magnet systems for these applications.

We are presenting early results on the development of a pulsed field system developed for SwissFEL with a target field above 30 T and wide scattering angles. Based on systems developed for synchrotron sources [3,4], we investigate which technologies, in combination with miniaturized solenoids, allow reduced dissipation. The reduced energy requirements open up further applications beyond X-ray scattering which require particular pulse shapes, and we discuss first models into this direction.

[1] S. Gerber et al., Science, 350, 6263, 2015

J.P.C. Ruff et al., Phys. Rev. Letters, 105, 077203, 2010

Z. Islam et al., Rev. Sci. Instr., 80, 113902, 2009

F. Duc et al., Rev. Sci. Instr., 85, 053905, 2014

Presenter(s) : Dr. STEPPKE, Alexander (PSI — Paul Scherrer Institut)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **14** Type : **Oral**

Contribution TBC

Thursday, 3 November 2022 11:30 (30)

Presenter(s) : Dr. MAZZONE, Daniel (PSI — Paul Scherrer Institut)

Session Classification : Experience with pulsed fields | Science & Techniques

Track Classification : Experience with pulsed fields | Science & Techniques

Contribution ID : **15** Type : **Oral**

Neutron scattering experiments with high magnetic fields in organic magnets

Thursday, 3 November 2022 16:00 (30)

Presenter(s) : Dr. CAMPO, Javier (ICMA — Instituto de Ciencia de Materiales de Aragón)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **16** Type : **Oral**

Investigating field-induced magnetic order in Han Purple by neutron scattering up to 25.9 T

Thursday, 3 November 2022 14:30 (30)

The quasi-two-dimensional quantum magnetic compound BaCuSi2O6, an ancient pigment also known as Han Purple, consists of three different types of stacked, square-lattice bilayers hosting spin-1/2 dimers. This material undergoes a magnetic-field-induced quantum phase transition at a critical field of 23.35 T from a quantum disordered to a magnetically ordered state that resembles the XY spin-model. Although BaCuSi2O6 has been studied in detail over the last two decades, the size of the critical field has precluded any kind of neutron scattering investigation of its XY physics.

Here we report neutron scattering measurements up to 25.9 T performed using the HFM/EXED facility at the Helmholtz-Zentrum in Berlin to investigate the magnetic order and determine the excitation spectrum in the field-induced phase. A model of the neutron scattering intensity, assuming a conventional form of the order parameter, is in excellent agreement with the neutron diffraction data and no evident hallmarks of two-dimensional physics are visible within the covered field and temperature range. Measurements of the magnetic excitations as a function of the applied field agree well with the modelled spectrum calculated based on the spin Hamiltonian determined in a previous neutron spectroscopy study at zero magnetic field. We conclude that the HFM/EXED facility allowed a qualitative extension in the application of neutron scattering techniques to the field range above 20 T and its results point the way for next-generation high-field neutron scattering facilities.

Presenter(s) : Dr. ALLENSPACH, Stephan (PSI — Paul Scherrer Institute)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **17** Type : **Oral**

Neutron scattering in magnetic fields up to 26 T using HFM/EXED facility

Thursday, 3 November 2022 14:00 (30)

Application of high magnetic fields is a powerful method for revealing a complex behaviour in modern materials. In combination with a microscopic probe such as neutrons it provides a direct access to static and dynamic correlations in matter. Until the shutdown of the BERII research reactor in 2019, Helmholtz-Zentrum Berlin (HZB) hosted a unique high field facility for neutron scattering. It combined neutron scattering with continuous magnetic fields as high as 26 T and temperatures down to 0.1 K.

Magnetic field was generated by means of horizontal solenoid High Field Magnet (HFM). The magnet utilised hybrid technology and reached 25.9 T at full power of 4 MW. The tapered inner coil allowed neutron scattering to detectors up to �15� off the beam axis. Furthermore, the magnet could be rotated by an additional 15° to access a larger reciprocal space region. Neutron scattering in high fields was performed using the dedicated multi-purpose Extreme Environment Diffractometer (EXED). EXED used time-of-flight (TOF) polychromatic technique. Combined with 15° magnet rotation it provided a gapless coverage of Q-range from 0.1 up to 12 Å-1 for diffraction experiments. The low-Q range could be extended beyond 10-2 Å-1 using a pin-hole TOF Small Angle Scattering mode. A direct TOF spectrometer mode enabled inelastic neutron scattering experiments over a limited Q-range < 1.8 Å-1 with an energy resolution of a few percent and incident energies below 25 meV. In this talk I will give an overview of the HFM/EXED facility with focus on scientific examples obtained over several years of the facility's operation.

Presenter(s) : Dr. PROKHNENKO, Oleksandr (HZB — Helmholtz-Zentrum Berlin)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **18** Type : **Oral**

HTS insert based on the metal-as-insulation winding technology as a step forward to very high field superconducting magnet

Thursday, 3 November 2022 16:30 (30)

Recently, several technological breakthroughs have confirmed the practical feasibility of superconducting solenoid magnets generating more than 30 T, based on a large traditional low-temperature superconducting (SBT) magnet, in which an insert based on high temperature superconductors (HTS) is introduced. In addition to a very significant reduction in electrical energy consumption, they also open up new experimental possibilities, such as experiments of very long duration or experiments that require very low levels of electrical and mechanical noise, impossible to achieve with resistive magnets.

To show the unprecedented capacity of HTS coated conductor to generate very high field at 4.2 K, we have developed a very compact HTS insert within a strong CNRS-LNCMI /CEA–DACM collaboration that could be tested in a 20 T 170 mm large bore resistive magnet available at LNCMI. As the HTS magnets must be effectively protected against transition to the normal state (quench), currently one of the major bottleneck in their use, this robust environment allows to focus on the operation and protection modes under high magnetic field of such an HTS insert.

We introduce the innovative "metal-as-insulation" (MI) winding technology to improve the quench protection. The co-winding of a superconductor with a metal ribbon, without isolation nor impregnation, allows the current to redistribute in the event of a local defect, conferring on the insert a self-protected character in case of quench. This self-protected character is shared with the non-insulated (NI) coil concept, but the additional turn-to-turn resistance brought by the metal co-wound ribbon reduces drastically the important time constant observed in NI coils. Moreover, in addition to thermal protection, the metal ribbon participates to the mechanical strength of the coil.

The HTS insert made of 9 double pancakes of a 6 mm wide HTS tape and with a 38 mm cold bore compatible with the concept of user magnet reached a world record central magnetic field of 32.5 T of which 14.5 T are produced by the HTS insert. This result also validated the "metal-as-insulation" concept for the first time under such high field. The use of MI coils that can surpass the current limit without damage is an inestimable way to test HTS windings close to their limits and to assess realistic safety margins.

As a follow-up, the European Infradev design project SuperEMFL was launched in January 2021 for designing a suite of beyond-state-of-the-art 30 to 40 Tall- superconducting user magnets to be deployed at the EMFL facilities or at other research infrastructures, while the PIA3 FASUM project, officially kicked in December 2021, aims at the fabrication of such a 40 T class all superconducting user magnet to be implemented at LNCMI Grenoble which will consist in the challenging combination of a LTS magnet and a high field HTS insert.

Expanding knowledge on stability, quench protection, structural integrity, and electromagnetic design will be extraordinarily useful for the design of other magnet systems such as high-field magnets suitable for different types of neutron beamlines at the ILL or ESS, or for X-Ray beamlines at ESRF.

Acknowledgments: The authors acknowledge funding from the European Union's H2020 R&I programme (SuperEMFL grant agreement No 951714) and the French ANR (PIA3 FASUM ANR-21-ESRE-0027), and the support of the LNCMI-CNRS, member of the European Magnetic Field Laboratory (EMFL).

Presenter(s) : CHAUD, Xavier (LNCMI — Laboratoire National des Champs Magnétiques Intenses)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **19** Type : **Oral**

Neutron studies in high static magnetic fields: Application to some Uranium systems

Thursday, 3 November 2022 15:00 (30)

Magnetic field is a fundamental thermodynamical parameter having a potential to change the miscroscopic arrangement of magnetic moments or even to create them in the first place. To disclose the spatial arrangement, nature and magnitude of magnetic moments involved in a long-range magnetic order, neutron diffraction is still the method of choice. However, the relatively weak interaction between the magnetic moments within the studied substance and the neutron's own magnetic moment makes neutron experiments in strong magnetic fields lengthy, complicated and costly. This holds for diffraction experiments and even more for inelastic scattering experiments. Moreover, in order to generate high magnetic fields, magnet coils tend to be large and highly obscuring neutron beam. Thus, there is always trade between the maximum field strength acting on the system under study and geometrical restrictions. While pulsed magnets offer higher magnetic fields at low energy costs and moderate requirements for technical infrastructure enabling diffraction experiments up to ~40 T, steady magnetic fields, although of lower strength, require enormous technical infractructure and running costs but enable also inelastic studies.

In this contribution several high-field neutron diffraction and scattering experiments on U-based systems performed at Helmholtz-Zentrum Berlin using steady magnetic fields up to 26 T will be summarized. A complicated field-induced non-collinear magnetic structure in the Shastry-Shuterland system U2Pd2In that appears above a critical field of ~25 T applied along the a-axis direction serves as an example for a magnetic state that was not anticipated from bulk magnetic measurements. Field-induced magnetic state in 8%-Rh doped URu2Si2 that appears for the c-axis direction above ~22 T documents that magnetic field can induce substantial magnetic moments and even create a long-range magnetic order - an uncompensated antiferromagnetic order. No doubt that such studies could be performer also in pulsed magnetic fields. This, however, does not hold for two other experiments described in this contribution − inelastic experiments on a pristine and 8%-Rh doped URu2Si2. Despite a limited Q-range available during these experiments it is shown that the effect of the magnetic field on the inelastic signal in the two systems is distinctly different. The observation is brought into a context with the different ground state of the two systems.

Presenter(s) : Dr. PROKES, Karel (HZB — Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **20** Type : **Oral**

Contribution TBC

Thursday, 3 November 2022 17:00 (30)

Session Classification : Experience with static fields | Science & Techniques

Track Classification : Experience with static fields | Science & Techniques

Contribution ID : **21** Type : **Oral**

State of the art and perspectives of LNCMI pulsed magnets at neutron sources

Friday, 4 November 2022 09:00 (30)

The Laboratoire National des Champs Magnétiques Intenses (LNCMI) is a French host facility for experiments in high magnetic fields. LNCMI is a member of the European Magnetic Field Laboratory (EMFL) with the Hochfeld-Magnetlabor in Dresden (HLD) and the High Field Magnet Laboratory in Nijmegen (HFML). The Toulouse facility is dedicated to the generation of pulsed magnetic fields. The LNCMI-Toulouse has been engaged for two decades in the development of pulsed magnets suitable for experiments combining high magnetic fields and other condensed matter probes such as X-rays and neutrons.

We present here the existing cryomagnet developed in collaboration with the ILL and the CEA for single crystal neutron diffraction [1], focusing on the 40 Tesla long duration and high duty cycle pulsed magnet. This magnet combines state-of-the-art developments such as optimized reinforcement density and rapid cooling channels. Improvements are still possible based on this original design in terms of magnetic field, pulse duration and repetition rate. We present a preliminary design study of an improved magnet and also discuss some technical issues and the possibilities to solve them.

[1] F. Duc et al. Review of Scientific Instruments 89, 053905 (2018); https://doi.org/10.1063/1.5028487

Presenter(s) : Mr. BÉARD, Jérôme (LNCMI — CNRS)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **22** Type : **Oral**

Neutron scattering with high magnetic fields at SNS and HFIR

Friday, 4 November 2022 08:30 (30)

Because of the energy scales of moderated neutrons, their penetrating power for metals, and their large cross-section for magnetic materials, neutron scattering will always couple well with applied magnetic field sample environments and measurements. Magnetic fields are used in neutron scattering measurements to probe systems across complicated phase diagrams as well as to directly tune the energy scales of the magnetic excitations.

The Spallation Neutron Source (SNS) and High Flux Isotope Reactor (HFIR) have a suite of magnetic field sample environments that is used in both diffraction and spectroscopy measurements to characterise materials through discovery-based research. I will discuss recently acquired and proposed magnetic field sample environments for these facilities. This will include some discussion of lessons learned and recent science examples from measurements using these sample environments. I will also discuss proposed instruments at the ORNL facilities which will make use of bespoke high magnetic field sample environments.

Presenter(s) : Dr. STONE, Matthew B. (ORNL — Oak Ridge National Laboratory)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **23** Type : **Oral**

REBCO HTS magnets for High Field: Recent results and prospects for Neutron Scattering

Friday, 4 November 2022 09:30 (30)

Presenter(s) : Dr. BADEL, Arnaud (LNCMI — CNRS)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **24** Type : **Oral**

Contribution TBC

Friday, 4 November 2022 10:30 (30)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **25** Type : **Oral**

Contribution TBC

Friday, 4 November 2022 11:00 (30)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **26** Type : **not specified**

Discussion

Friday, 4 November 2022 11:30 (30)

Session Classification : Projects | Specifications & Roadmap

Track Classification : Perspectives & Projects | Specifications & Roadmap

Contribution ID : **28** Type : **not specified**

Welcome by the Organisers

Wednesday, 2 November 2022 14:00 (10)

Primary author(s) : Dr. DUC, Fabienne (LNCMI Toulouse)

Co-author(s) : Dr. LELIÈVRE-BERNA, Eddy (ILL)

Presenter(s) : Dr. LELIÈVRE-BERNA, Eddy (ILL); Dr. DUC, Fabienne (LNCMI Toulouse)

Session Classification : Welcome

Track Classification : Introduction

Contribution ID : **29** Type : **not specified**

Introduction by the ISABEL coordinator of the Relations with EU Research Infrastructures

Wednesday, 2 November 2022 14:10 (20)

Presenter(s) : Dr. SIMON, Charles (LNCMI — Laboratoire National des Champs Magnétiques Intenses)

Session Classification : Welcome

Track Classification : Introduction