Dear Triple Axis Spectroscopy Users of the HFIR at ORNL:

As the deadline approaches for the next ORNL neutron scattering proposal call, here are some quick updates about the Triple Axis Spectroscopy Instrument Suite at the High Flux Isotope Reactor (HFIR):

1. Proposal deadline

IPTS is now open to accept proposals for the 2026-B call, with a **March 4th deadline at noon**. Please visit **ipts.ornl.gov** to submit a proposal.

2. Triple axis spectroscopy instrument descriptions

(i) **VERITAS (HB-1A)**: fixed incident energy thermal triple-axis spectrometer. An excellent signal-to-noise ratio and large Q-coverage makes this instrument ideal for magnetic elastic scattering studies of small single crystals (mass > 2 mg), powders, and thin films at a variety of different temperatures (0.04 – 1800 K), vertical magnetic fields (0 - 6 T), applied hydrostatic pressure (< 2 GPa), uniaxial pressure (compressive force < 300 lbs), and electric fields (≤ 10 kV with 1.5 – 300 K and 0 – 6 T). A four-circle goniometer option is available (4 – 450 K) and particularly useful for magnetic structure studies of materials with small moments (≤ 2 μ_B) and/or for cases where ultra-low $\lambda/2$ contamination is preferred. For more information, please contact Wei Tian (tianwn@ornl.gov) or Adam Aczel (aczelaa@ornl.gov).

(ii) **HB-1**: polarized thermal triple-axis spectrometer. This instrument is specifically designed for polarized beam measurements with several experiment configurations. These measurements can be done at a variety of different temperatures (0.04 – 1800 K), magnetic fields (0 – 8 T), applied hydrostatic pressure (< 2 GPa), uniaxial pressure (compressive force < 300 lbs), and electric fields (≤ 10 kV with 1.5 – 300 K and 0 – 6 T). Experiment configurations available at HB-1 include half-polarization, longitudinal polarization analysis (single axis or XYZ), spherical neutron polarimetry (SNP), and Larmor diffraction ($\Delta d/d \approx 10^{-5}$). For general information about HB-1, please contact Masaaki Matsuda (matsudam@ornl.gov) or Avishek Maity (maityа@ornl.gov). For more information regarding SNP or Larmor diffraction, contact Peter Jiang (jiangc@ornl.gov) or Fankang Li (frankli@ornl.gov) respectively.

(iii) **HB-3:** general purpose thermal triple-axis spectrometer. This instrument is our most intense triple-axis spectrometer and is designed for inelastic measurements on single crystals over a wide range of momentum and energy transfers (up to ≈ 100 meV). These measurements can be done at a variety of different temperatures (0.04 – 1800 K), vertical magnetic fields (0 – 8 T), applied hydrostatic pressure (< 2 GPa), uniaxial pressure (compressive force < 300 lbs), and electric fields (≤ 10 kV with 1.5 – 300 K and 0 – 6 T). In addition to the standard PG monochromator, the instrument has a Si monochromator for experiments that want to avoid $\lambda/2$ contamination and a Be monochromator for achieving higher resolution at high energy transfers. For more information, please contact Songxue Chi (chis@ornl.gov) or Eleanor Clements (clementsem@ornl.gov).

(iv) **CTAX (CG-4C):** cold triple-axis spectrometer. This instrument is designed for inelastic measurements on single crystals, where low energy transfers between -2 to 5 meV and good energy resolution are

necessary. These measurements can be done at a variety of different temperatures (0.04 – 1800 K), vertical magnetic fields (0 – 11 T), horizontal magnetic fields (0 – 6 T), applied hydrostatic pressure (< 2 GPa), uniaxial pressure (compressive force < 300 lbs), and electric fields (≤ 10 kV with 1.5 – 300 K and 0 – 6 T). The base-temperature for experiments requiring vertical magnetic fields above 8 T is 0.3 K. The Q-range of the horizontal field magnet is very limited, so please contact the instrument team in advance of submitting your proposal to properly assess feasibility. For more information, please contact Tao Hong (hongt@ornl.gov) or Hodaka Kikuchi (kikuchih@ornl.gov).

The adaptability of the triple axis spectrometers ensures that a wide variety of user-supplied equipment can be accommodated when needed and potential users are encouraged to discuss possible options with the instrument teams. More details for these instruments can be found at the following link: http://neutrons.ornl.gov/instruments/

3. Single crystal sample alignments

If you need to align a single crystal for your triple-axis spectroscopy experiment, please email your local contact well in advance of the experiment, so alignment time can be reserved for you on the neutron alignment station CG-1B or one of our two Laue x-ray diffractometers. Note that we have a first-come, first-served scheduling system for these instruments. Also, let your local contact know if you are experienced with sample alignments or if you will require significant assistance.

4. Sample environment

(i) **High Temperature Experiments** (> 400K): A high temperature checklist is required to perform a high temperature experiment at HFIR. It is ideal to fill out the checklist and return it as soon as it is received so that any issues can be addressed and mitigated quickly. Please consider the sample holder material in reference to the sample material for any reactions that may occur at the required temperatures. The high temperature equipment dimensions and temperature range information are available on the public sample environment webpage: https://neutrons.ornl.gov/sample/list/furnaces. For more information, please contact Bekki Mills (millsra@ornl.gov).

(ii) **Ultra-low Temperature and/or Magnetic Field Experiments:** (< 1.5K): Please ensure that a properly aligned and mounted single crystal or a loaded powder sample can is provided to the sample environment team at least one working day (Monday – Friday) before the experiment is scheduled to begin to maximize data collection time on the instrument. The ultra-low temperature equipment dimensions and temperature range information are available on the public sample environment webpage: https://neutrons.ornl.gov/sample/list/ultra-low-temperature-device. For more information, please contact Josh Pierce (piercejj@ornl.gov).

(iii) **Applied pressure:** If you want to apply hydrostatic or uniaxial pressure during your experiment, it is critical to begin communication as early as possible to ensure success of your experiment. Due to our Be-containing sample and equipment handling policy, all CuBe pressure cells for neutron scattering experiments must be supplied by ORNL. Pressure users are strongly advised to arrive to ORNL at least

one full day before their experiment begins to ensure successful sample loading. Our high-pressure capabilities are available on the public sample environment webpage: https://neutrons.ornl.gov/high-pressure-and-gas-handling/home. For questions regarding our high-pressure program, please contact Dilip Bhoi (bhoidk@ornl.gov).

(iv) **Block scheduling:** We schedule experiments requiring the same sample environment equipment on a particular instrument in blocks. For this reason, the impossible dates that you provide when submitting the proposal are **extremely important**. Please enter these dates into the IPTS system with as much accuracy as possible when you submit your proposal. We will accept changes to impossible dates up to **one week** after experimental approval notices are sent out to users. After this period, we will create the experiment schedule and therefore we may not be able to accommodate additional change requests.

Regards,

The Triple Axis Spectroscopy Group at HFIR