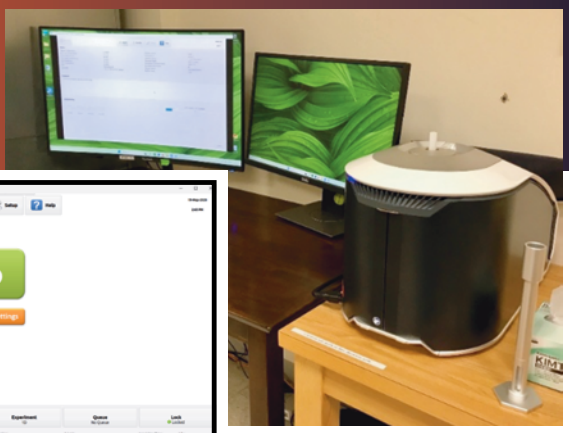
University of Illinois | School of Chemical Sciences
CORESUPDATE
Center of Research & Educational Support Newsletter
Summer 2026

The NMR Lab has a new 60-MHz NMR Spectrometer



At 60 MHz (1.4 Tesla), the new benchtop NMR spectrometer can perform both NMR and relaxometry. Obtained to mostly measure T1 and T2 values, the equipment has been accessorized to further provide sample temperature control from +5 to +45 °C, a feature not commercially available.

Made by Nanalysis (Calgary, Alberta, Canada), the electromagnet is not superconducting, and therefore uses no cryogens. The magnet is always on providing field stability and standby shimming, and operates on a powerpack similar to one a laptop might have.

After the user inputs appropriate data acquisition conditions, T1 or T2 are measured automatically using either 1H or 19F as a nucleus.

Acquisition of an NMR spectrum proceeds in a straightforward manner. Locking is typically on deuterium, but proton lock is also available for sample temperature determination using the common standards of neat methanol (as CH_3OH) or ethylene glycol (as $HOCH_2CH_2OH$).

Users begin by completing an authorization form, and are trained separately from other NMR instruction.

Scan the QR code for links to the extensive operational document, authorization and ChemFOM reservation form.

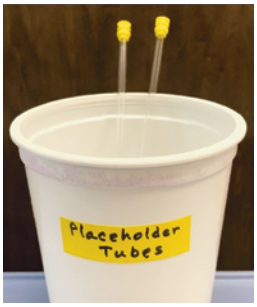
New Special Permissions Procedure for Automated NMR

A special permission procedure is now available for long acquisitions or timed samples being run under automated NMR that cannot otherwise be submitted by users under the normal restraints imposed by the operating software of the instrument.

For both the CB500 and B600 NMR spectrometers, users can now request a reserved time slot for a long sample or a sample that needs to be run at a particular time. Users must read and acknowledge the procedural details via a policy statement and standardized form obtained here:

Authorization/Responsibility form

After informing the NMR Staff, the user puts either their sample or a placeholder tube (for later substitution of a real sample) in location on the sample cassette, with the accurate data acquisition time displayed on the automation queue. The placeholder tube reserves a physical location on the sample cassette. Whenever possible, the user should select a time that comes after all other samples on the queue; bumping is to be avoided.



With saved locations on both the automation cassette and queue, the user notifies the NMR Staff that their time slot is ready, and the Staff member submits the sample.

In the instance of a sample not ready until just before the actual run time, the user is obligated to remove the placeholder NMR tube and put their real sample in its place as needed.

New opportunity for data collection of crystal samples at Argonne National Laboratory's Advanced Photon Source (APS)

SCrAPS
SYNCHROTRON CRYSTALLOGRAPHY AT THE ADVANCED PHOTON SOURCE

SCrAPS's mission is to provide academic and research users access to NSF's ChemMatCARS and their specialized single-crystal X-ray diffraction instrumentation with a tunable, high-brilliance synchrotron radiation at the newly upgraded (2026) Advanced Photon Source (APS) at Argonne National Laboratory. The lead contact for the SCrAPS team will be Dr. Yu-Sheng Chen.

The SCrAPS team will regularly submit General User Proposals (GUPs) for beamtime through NSF's ChemMatCARS at the APS. When beamtime is awarded, researchers may submit samples using the submission form through one of the SCrAPS regional coordinators. SCrAPS accepts only those samples that cannot be adequately studied using conventional in-house laboratory diffraction sources. The SCrAPS team travels to the APS once per session—typically three times each year—to collect diffraction data on approved submissions. Upon request, samples and datasets are returned to researchers following data collection. In addition, the team can provide assistance with structure solution and refinement. Program fees are intentionally kept to a minimum and are used solely to offset travel and lodging expenses.

Current Rates:
$50 per submission

Additional $50 for a working crystal/data collection.

First run date is July 24

Submission deadline for first run is July 6, 2026.

To submit crystals for the first run for data collection: Complete the submission form (linked below) and email the form to Toby Woods (***tobyw@illinois.edu***)

SCrAPS Sample Submission Form

If interested, contact one of the regional coordinators listed below and more information will be provided to you.

SCrAPS Regional Coordinators:

Dr. Chun-Hsing (Josh) Chen
University of North Carolina at Chapel Hill

Dr. Daniel Decato
University of Montana

Dr. Toby Woods
University of Illinois Urbana-Champaign

Dr. Nathaniel Barker
Northwestern University

Dr. Alexander Erickson
Marquette University

Dr. Nobuyuki Yamamoto
University of Oklahoma

Dr. Michael Gau
University of Pennsylvania

If the data collected at the APS is used for publication, please use the following for citation purposes:

"NSF's ChemMatCARS, Sector 15 at the Advanced Photon Source (APS), Argonne National Laboratory (ANL) is supported by the Divisions of Chemistry (CHE) and Materials Research (DMR), National Science Foundation, under grant number NSF/CHE-2335833. This research was performed on APS proposal award 1020219 from the Advanced Photon Source, a U.S. Department of Energy (DOE) Office of Science user facility operated for the DOE Office of Science by Argonne National Laboratory under Contract No. DE-AC02-06CH11357"

Microanalysis Needs Your Help!

The Microanalysis Facility wants to gauge interest in their ICP Workshop.

This workshop covers the theory of ICP-OES and ICP-MS and includes hands-on sample preparation and instrument operation.
Please complete the survey regarding the workshop using the link below

ICP Workshop Survey