

Subject: MSNO June Four Point Quarterly:

Dear MSNO Community,

Welcome to the third issue of the MSNO Four Point Quarterly. Thank you to everyone who renewed your memberships and continue to support MNSO! We are excited to announce several upcoming events below, including the annual Microscopy and Microanalysis hosted by MSA and MAS - we hope to (virtually) see you there!

If you have content for the next FPQ, please send it to microsocietyneo@gmail.com

1. Upcoming events:

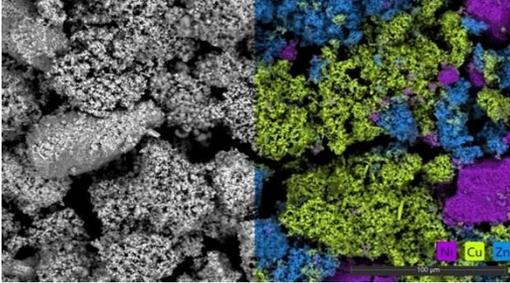
Local AMLCI Characterization Facility at Kent State University is going to host our annual joint AMLCI/MSNO/ACCESS Microscopy/Microanalysis Summer School on July 22 and 23. This year's topics include surface characterization techniques (instructor: Andrew Knoll, University of Akron), introduction of electron microscopy, cryo-EM, and diffraction (Min Gao, Kent State University), single-particle cryo-EM (Kunpeng Li, Case Western Reserve University), rheometry (James Eickhoff, Anton Paar), and small angle x-ray diffraction (Scott Barton, Xenocs). The summer school will be held online and will be followed by a pre-training session (hopefully in-person, depending on the policy then) for SEM and TEM techniques. The summer school link can be found here: <http://www.msneo.org/summerschool2021-amlci.html>. The registration (free) is now open.

National: Mark your calendar and Save the Date for the premier microscopy education and networking event of the year — [Microscopy & Microanalysis 2021](#), has gone virtual! Plenaries to include COVID19 researchers and Kavli Award Recipient.

Microscopy Today publishes a comprehensive list of microscopy related meetings and courses monthly. The most recent list can be found [here](#), along with instructions on how to submit information about your event.

2. This month's featured vendor is ThermoFisher:

Thermo Fisher Scientific recently introduced a new scanning electron microscope Axia ChemiSEM a system that makes obtaining SEM-EDS data no longer a chore. Unlike traditional SEMs it has a unique algorithm that processes the SEM and EDS data simultaneously. This workflow puts elemental mapping FIRST revealing otherwise unseen information about your samples. Axia ChemiSEM is a cost effective, floor model scanning electron microscope that increases the speed of materials microstructural analysis and defect discovery.



A few of the key features are:

- EDS analysis that is always on for increased productivity
- Flexibility with a removable stage for accommodating larger samples
- User Guidance for workflows, optimal settings and more

To learn more about this new fully integrated technology go to:

<https://www.thermofisher.com/us/en/home/electron-microscopy/products/scanning-electron-microscopes/axia-chemisem.html>

3. **Facility Highlight:**

Two new additions have been completed at AMLCI Characterization Facility of [Advanced Materials and Liquid Crystal Institute](#), Kent State University. The recently established [Anton Paar Materials Characterization Lab \(APMCL\)](#) is a material characterization and analysis laboratory equipped with a series of precision instruments from Anton Paar Inc., including a highly versatile rheometer, viscometer, digital refractometer, a Raman spectrometer that can be interfaced with the rheometer for simultaneous data collection, polarimeter, solid surface zeta potential analyzer, and a microwave synthesizer.



A new Xenocs Xeuss 3.0 ultrasmall-, small- and wide-angle X-ray scattering facility is now up and running. The instrument features Cu and Mo sources, link temperature, shear and tensile stages, USAXS (Bonse-Hart), solid and capillary sample holders, Variable humidity stage, polarized optical microscope insert, etc.



4. **Early career research highlight:** Laura Wilson, Ph.D. Candidate CWRU Materials Science and Engineering

Laura has been working under an Aeronautics Research Mission Directorate (ARMD) Fellowships for her research proposal entitled: Additive Manufacturing of Oxide Dispersion Strengthened NiCoCr for Future Aerospace Vehicles. In this work she is trying to understand relationships between processing, microstructure, and the ultimate properties of these materials. A major part of this work is to collect microstructural data on her samples of an additively manufactured Ni-alloy, utilizing optical profilometry, optical microscopy, and electron backscatter diffraction (EBSD), among other methods. In the optical profilometry work, she is trying to understand how additive manufacturing parameters (i.e., laser speed and power) control surface roughness. Surface roughness is a known contributor to premature failure of fracture critical components under cyclic loading. She is using EBSD and scanning electron microscopy (SEM) to investigate the grain sizes and textures within the samples and to see how the AM parameters affect the grains and oxide distribution. She is entering her fourth year under the fellowship as a PhD Candidate in CWRU's Materials Science and Engineering Department, having previously worked in GE Aviation's electron microscopy facility and earning her M.S. and B.S. in Geology. Her love of microscopy is fulfilled by her research and her position on the Microscopy Society of America Student Council.



Warm regards, your MSNO Board

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