



MICROSCOPY SOCIETY OF NORTHEASTERN OHIO

An affiliate society of the Microscopy
Society of America (MSA)
and the Microanalysis Society (MAS)



MSNO FALL MEETING

3:00 – 7:30p.m., Wednesday, October 14th, 2015

Jones Meeting Room, Kilcawley Center, Youngstown State University

Registration/Vendor exhibitions	Starts at 3:00 PM	Professional table, poster boards, refreshments
YSU Facility Tours & Demos 1. Electron Microscopy (EM) Facility 2. Center for Innovation in Additive Manufacturing (AM).	3:30 – 4:00 PM 4:00 – 4:30 PM	YSU EM Facility has 3 JEOL SEMs (JIB-4500 SEM/FIB, JSM-7600F SEM. JSM-iT300LV SEM), & a JEOL JEM2100 TEM. YSU Center for Innovation in AM features high-end 3D printers, including an ExOne M-Flex printer, an ExOne X1-Lab printer &more.
Opening and Welcome	4:40 –4:50 PM	Dr. Gregg Sturru s, Interim Dean, STEM, YSU. Michael Hripko , Associate Vice President for Research, YSU.
Presentation 1 Prof. James McGuffin-Cawley Case Western Reserve University	4:50- 5:35PM	Additive Manufacturing of Metals, Ceramics, and Polymers
Dinner, MSNO Student Awards; Raffle	5:35 - 6:45PM	President Suite, Kilcawley Center, YSU
Presentation 2 Dr. Lucille A. Giannuzzi , <i>MAS Tour Speaker</i> , L.A. Giannuzzi & Associates LLC, EXpressLO LLC	6:45– 7:30PM	Focused Ion Beam Applications for Prototyping and Specimen Preparation.

- Online registration** is available at <http://www.msneo.org/2015-fall-meeting-registration.html>. Registration fee (dinner included) is \$20 for members, \$25 for non-members, \$5 for full time student members, \$10 for full time student non-members. To join MSNO, please check <http://www.msneo.org/membership-application-and-renewal-form.html>.
- Parking** is available at the M1 Deck. Registration by 10/11/15 will include FREE PARKING for the event. Otherwise, parking is \$5, payable onsite.
- Registration and payment at the door are available at an additional \$5 cost. Preregistration is kindly requested for an accurate head count.
- Professional table:** interactions between industrial and academic professionals and students.
- MSNO student awards** will be presented to the 2015 winners.
- Latest updates** can be found at: <http://www.msneo.org/2015-fall-meeting.html>.

PROGRAM INFORMATION

Additive Manufacturing of Metals, Ceramics, and Polymers

Dr. James McGuffin-Cawley (Case Western Reserve University)

Additive manufacturing has strong connections to well-established manufacturing processes. A short perspective on the inception and evolution of additive will be offered in the context of manufacturing processes. An effort will be made to separate hype from demonstrated achievement. For example, it often is inferred that ‘additive offers freedom.’ It will be argued that additive, like any other processing method, represents a constrained optimum. It has unique features and is ideal for achieving particular goals. However, it has limitations that are understandable using a version of the familiar structure-properties-processing triangle. Specific examples of relationships will be offered for different material classes.

Bio: At CWRU, Prof. Cawley is currently the Arthur S. Holden professor of engineering and the chair of the Department of Materials Science and Engineering. Prior to becoming chair, he spent five years as the associate dean for undergraduate affairs in the school of engineering. He has more than twenty years broad-based experience in ceramic and powder metallurgy research. In addition, he formed a rapid-prototyping spin-off company in 1998, CAM-LEM, Inc., with two other CWRU faculty. He recently prepared an invited book chapter on rapid prototyping in powder-based processing. Over the past two years, Prof. Cawley has served America Makes as a representative of CWRU on the Governance Board, and as an elected member of Executive Committee. He has been a volunteer member of the Performance Metrics Subcommittee and Technology Transfer Advisory Group.

Focused Ion Beam Applications for Prototyping and Specimen Preparation

Dr. Lucille A. Giannuzzi, (L.A. Giannuzzi & Associates LLC, EXpressLO LLC)

Focused ion beam (FIB) based instruments are now routinely used for micro- and nano-prototyping for both “top-down” and “bottom-up” approaches and specimen preparation for a range of analytical instruments. Dual platform instruments (a FIB column and a scanning electron microscope (SEM) column on the same platform) can be used for unattended and automated site-specific cross-sectioning or TEM specimen preparation. The SEM can be used for end-pointing any FIB technique. In addition, the synergistic use of the FIB with the SEM allows for automated acquisition of serial slices for subsequent 3D reconstruction and tomography of microstructure (via SEM imaging), crystallography (via EBSD) and/or elemental composition (via EDS). Automated and advanced digital patterning capabilities can be used to either remove or deposit material lithography or micro- and nano-prototyping. Advances in different ion sources enable FIB to be used from nano- to macro- scale lengths. Advances in site-specific “lift out” specimen preparation methods will also be presented.

Bio: Lucille A. Giannuzzi holds a B.E. in Engineering Science and an M.S. in Materials Science and Engineering from SUNY Stony Brook and is currently Adjunct Professor at Stony Brook. She received her Ph.D. from The Pennsylvania State University in Metals Science and Engineering. Prof. Giannuzzi was at the University of Central Florida for 10 years and at FEI Company as a product marketing engineer for 7 years before founding her own consulting and product companies. Dr. Giannuzzi has applied FIB/SEM/TEM techniques to study the structure/property relationships in metals, alloys, ceramics, composites, polymers, minerals, bone/dental implants, inorganic, and biological samples. She maintains professional affiliations in AVS, ACerS, ASM Intl., TMS, MRS, MSA, and MAS and is a Fellow of AVS and MSA. Dr. Giannuzzi has over 100 (co)authored publications; several FIB-related patents, contributed to several invited book chapters, and is co-editor of a book entitled “Introduction to Focused Ion Beams.”

YSU Campus map

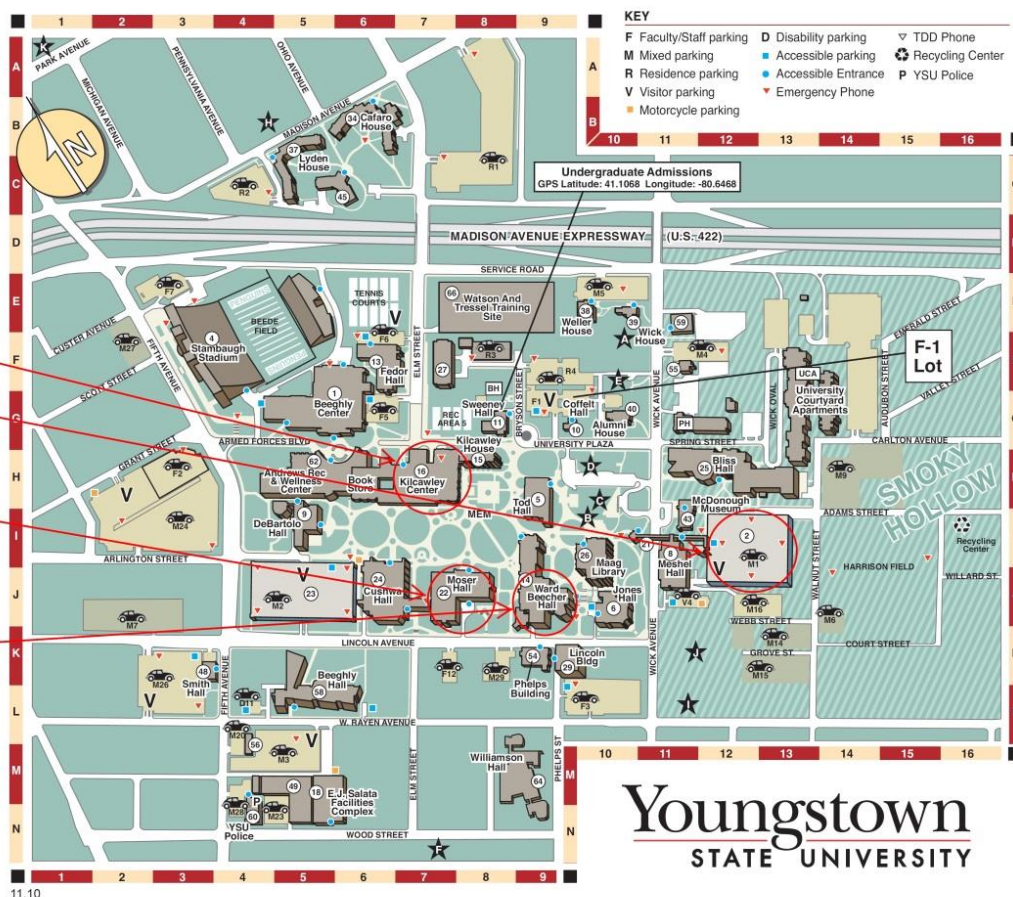
Name Grid Location

University Buildings

- MEM 9/11 Memorial 8H
- 40 Alumni House 10G
- 62 Andrews Student Recreation and Wellness Center 5H
- 1 Beeghly Center 5G
- 58 Beeghly Hall 5L
- 25 Bliss Hall 12H
- BH Buechner Hall 8F
- 34 Cafaro House 6B
- 27 Central Utility Building 7F
- 45 Christman Dining Commons 5C
- 60 Clingan-Waddell (YSU Police) 4N
- 10 Coffelt Hall 9G
- 24 Cushwa Hall 6J
- 9 DeBartolo Hall 5I
- 56 Disability Services 4L
- 18 E.J. Salata Facilities Complex 5M
- 13 Fedor Hall 6F
- 6 Jones Hall 10J
- 16 Kilcawley Center 7H
- 15 Kilcawley House 8H
- 29 Lincoln Building 10K
- 37 Lyden House 5B
- 2 M-1 Parking Deck 12I
- 23 M-2 Parking Deck 5J
- 26 Maag Library 10I
- 4 McDonough Museum of Art 11I
- 59 Melnick Hall 11E
- 8 Meshel Hall 11I
- 22 Moser Hall 7J
- 55 Peck-Schoff House 11F
- 21 Pedestrian Bridge 11I
- 51 Phelps Building 9K
- PH Pollock House 11G
- 48 Smith Hall 3K
- 4 Stambaugh Stadium 3F
- 1 Sweeney Hall 8G
- 5 Tod Hall 9H
- UCA University Courtyard Apartments 13F
- 14 Ward Beecher Hall 9J
- 66 Watson And Tressel Training Site-WATTS 8E
- 38 Weller House 10E
- 49 Westinghouse Building 5M
- 39 Wick House 10E
- 64 Williamson Hall 9M

Area Arts & Cultural Venues & Churches

- A Arms Family Museum of Local History 10F
- B Beecher Center for Technology in the Arts 10I
- C Butler Institute of American Art 10H
- D Butler Institute - North Annex 10H
- E Holy Trinity Romanian Orthodox Church 10F
- F Museum of Industry and Labor 7N
- H Newman Center 4B
- I Public Library 11L
- J St. John's Episcopal Church 11K
- K Wick Park 1A



Youngstown
STATE UNIVERSITY

Parking lots: M1 Parking Deck, 453 Wick Avenue, Youngstown, OH 44555

Registration: Hallway of 2nd floor, Kilcawley Center, YSU.

EM Facility: Rooms 5035A and 5029, Ward Beecher Hall; Room 1440, Moser Hall.

3D Printing Facility: Room 1470, Moser Hall.

Meeting: Jones Room, Kilcawley Center.

Dinner: President Suite, Kilcawley Center.

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