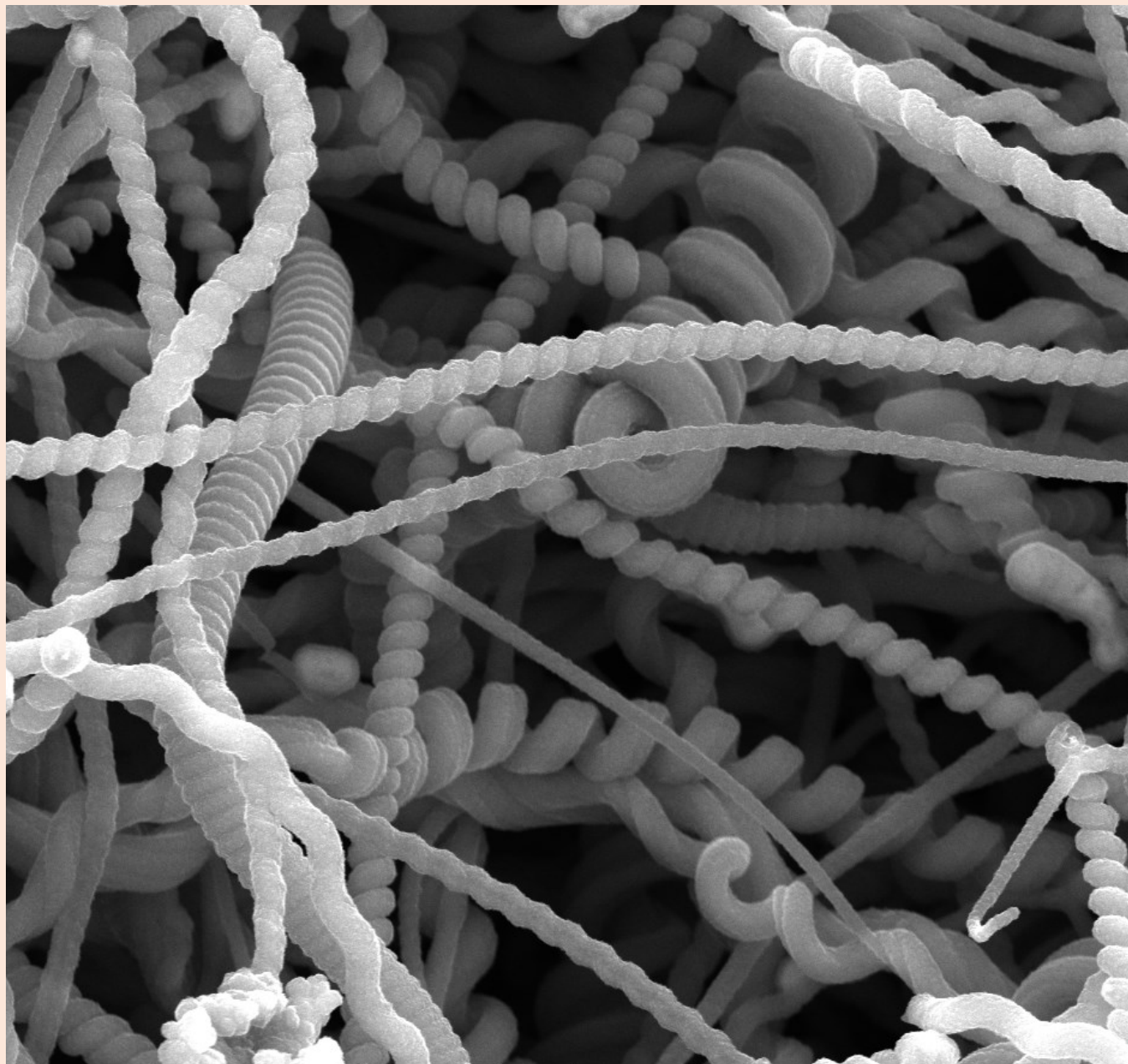


March 2019 Volume 40 No. 1 ISSN 0276-4776

# SPRING NEWSLETTER

**Oklahoma Microscopy Society**  
Established 1977



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# ABOUT THE COVER . . .

## Nanosprings



**Dr. Dave McIlroy**  
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Dr. McIlroy's research group studies nanoscale phenomena. This is a common area of condensed matter physics that spans a large swath of the landscape. Within this broad area they focus on zero and one dimensional nanomaterials and combinations thereof. They are interested in the surface properties, electronic and optical properties of these nanomaterials. Dr. McIlroy's group is best known for their work on nanosprings, where his lab has successfully created boron carbide, silicon carbide, and silica nanosprings.<sup>1</sup>

The cover images of this newsletter and *OSU Research Matters* were captured using the FEI Quanta 600F scanning electron microscope at the OSU Microscopy Lab.

McIlroy and his students are using nanosprings to construct explosive sensors called electronic noses in a project funded by the Office of Naval Research. The goal is to use the sensors to remotely detect Improvised Explosive Devices or IEDs. Millions of nanosprings within the sensor create a pathway for electrical current that is extremely sensitive to the absorption of ammonium nitrate.<sup>2</sup>

McIlroy's research was recently featured in *OSU Research Matters*, the annual publication of the Oklahoma State University Division of the Vice President for Research. His research was also featured in the OSU VPR's outreach program, *Research on Tap*, held in conjunction with Iron Monk Brewery. This is an opportunity for the public to meet and interact with experts from a wide range of research fields at OSU.<sup>3</sup> In below picture, at left, is Dr. Kenneth Sewell, OSU Vice President for Research. At right is Dr. Dave McIlroy.

### Sources:

1. <http://physics.okstate.edu/mcilroy/index.html>
2. *OSU Research Matters: Research, scholarship and creative activity at Oklahoma State University*, 2019.
3. <https://research.okstate.edu/rot/index.html>



Dear OMS Members, Supporters, Colleagues and Friends,

At this beautiful fall season--a season full of light, color, and contentment, from the gorgeous foliage to the fruits of success--I am excited and honored to be the new selected president of OMS for 2018-2019 and would like to share some thoughts with you.

First of all, I would like to take this opportunity to thank our Past President, Dr. Bill Meek, for his immeasurable commitment and myriad of contributions to our Society throughout his presidential term. Under his outstanding leadership, our organization has had a significant impact on the research community and public society in Oklahoma. Let's give Bill a big round of applause.

During my presidency, I will continue the many current excellent projects, including the Ugly Bug Contest, the Spring Workshop and the Fall Technical Meeting. For 22 years, our famous Ugly Bug has made its way to almost every corner of the State of Oklahoma, entered hundreds of schools, and more importantly, sparked interest in microscopy and entomology in the hearts of thousands of kids. OMS has also given numerous high-quality scientific microscopes to the winning schools, a gift which continues to impact scientific education in the classrooms of these schools. Our spring workshop and fall meeting have always been great opportunities for members to meet and chat together, to exchange ideas and to learn new techniques, and to promote and enhance collaborations. In addition to these projects, I would also like to achieve the following three goals during my presidency:

1. Expand our Society.
2. Foster new collaborators
3. Enhance our existing outreach program

Our members are the center of our organization. I will strive to expand our Society. Although the OMS were originally all electron microscopists, tremendous advancements in light microscopic technology have expanded our scientific approaches to a wide range of microscopically-related research fields, including biology, material science, and nanotechnology. Microscopy and imaging analysis have never been so important in research than they are today. Under my presidency, besides meeting the needs of our current members, we hope to attract and appeal to more people from more diverse disciplines at all levels, from undergraduate students, postdocs, research scientist, schoolteachers, to anyone who has the curiosity and passion in microscopy and/or imaging analysis. Our Society will also continue serving as a forum for professionals to develop cutting-edge instrumentation and techniques to boost communication and collaboration. However, we will also endeavor to promote basic and advanced education to our members at all levels. Through developing more workshops and short courses, organizing meetings and other events, expanding educational resources on our website, our society will significantly

grow the number of members, and increase the geographical expansion to the entire state of Oklahoma.

Building up a cooperative and collaborative environment has never been more important in today's society. We have been a local affiliate society of the Microscopy Society of America, the Microanalysis Society, and the Oklahoma Academy of Science for just over 40 years. We will strengthen our existing partner organizations through closely working with them. Moreover, I am keen for OMS to foster new partnerships. In particular, I look forward to our partnership with the OU Advanced Medical Imaging group. I have invited one member from this group, Dr. Liangzhong Xiang, to give us a presentation about his research at our Annual Spring meeting in March 2019. Dr. Xiang's work is focused on developing novel imaging techniques for Biomedical research. Through building up the partnership with the Advanced Medical Imaging group, we may promote the research bridging between laboratories to clinic. We will continually seek more professional collaborative opportunities internal and externally.

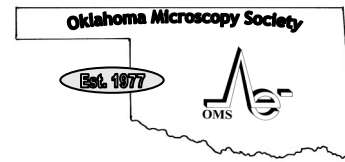
Giving back to our community and enriching public education have always been among our essential goals. Our society has done an excellent job in organizing the annual "Ugly Bug Contest", "Kid's Night of Science Activities", as well as the various other local community activities. I would like to extend our outreach program to include middle schools, high schools, and community colleges. Microscopy and microscopic analysis is a multidisciplinary area involving many related fields. Therefore, imparting knowledge of microscopy to grade and high school students, community college students, and the general public can promote STEM success in schools and seed interest and curiosity in everyone's heart. I would like to expand the scope of our outreach activities by collaborating with or participating in some big outreach programs in the state, such as the Oklahoma State Science Fair and the Oklahoma ScienceFest. Every year these programs offer hundreds of activities to thousands of kids. By participating in such big programs and providing hands-on activities related to microscopy to kids attending these fairs, our Society can make a big impact on our community.

I invite you to check all our events and find out how you can take an active part in contributing to OMS. Together, with our passion, let's build a brighter future for our society and enjoy a more successful harvest in next autumn.

Tingting Gu

OMS president 2018 – 2019

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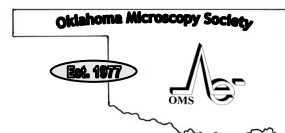
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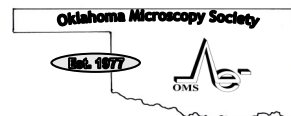
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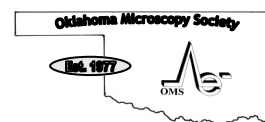
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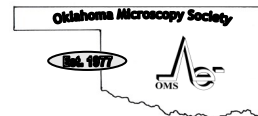
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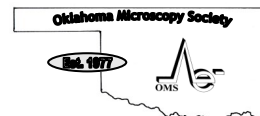
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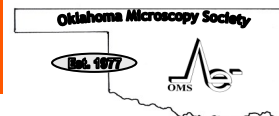
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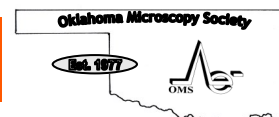
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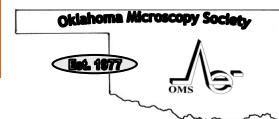
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# Oklahoma Microscopy Society

# 2019

## Spring Meeting

**DATE: March 7 – 8**

**University of Oklahoma, Norman OK**

**Memorial Union Regents/Associates room (3rd floor)**

### IMAGEJ/FIJI IMAGE ANALYSIS WORKSHOP

03/07/2019 at 9 – 5 pm  
@ OU Library

Instructor: Tingting Gu Ph.D.  
Morning section: beginner  
Afternoon section: intermediated

### KIDS NIGHT WITH MICROSCOPE

03/07/2019 at 6 – 8 pm  
Norman Public Library  
(Central)

### CRYO-EM TOUR/ DEMO

03/08/2019 @ SRNML  
Direct Electron detector  
Leica GP2 plunge freezer

## CONFIRMED SPEAKERS



**Dr. Liangzhong  
(Shawn) Xiang, OU**



**Dr. Qinggong Tang,  
OU**

### *Presentation topics:*

Photoacoustic Microscopy and Its Applications in Biomedicine and Nondestructive Testing. (Dr. Xiang)

Novel Technologies and Applications for Fluorescent Lamellar Optical Tomography. (Dr. Tang)

## OMS 2019 Fall Meeting

November 8<sup>th</sup>, 2019

University of Central Oklahoma



# Kids Night With Microscope



Are you interested in

- ❖ Scan your own sample by a Scanning Electron Microscope?
- ❖ Capture a small object or your friend as a 3D model?
- ❖ Create lightning and rainbow by yourself?
- ❖ Design a laser light maze and more fun and educational activities!

## March

# 7

(Thursday)

**6 - 8 PM**

Norman Central Library  
(225 N Webster Norman)  
Lowry Room

First **20** kids can image their own samples (up to the size of 2x2x2cm).  
Contact Dr. Tingting Gu  
[tingting.gu-1@ou.edu](mailto:tingting.gu-1@ou.edu) for any questions.

Free events  
Open to K-6 grades

### Structure Sensor 3D Scanner









### Hitachi Tabletop SEM



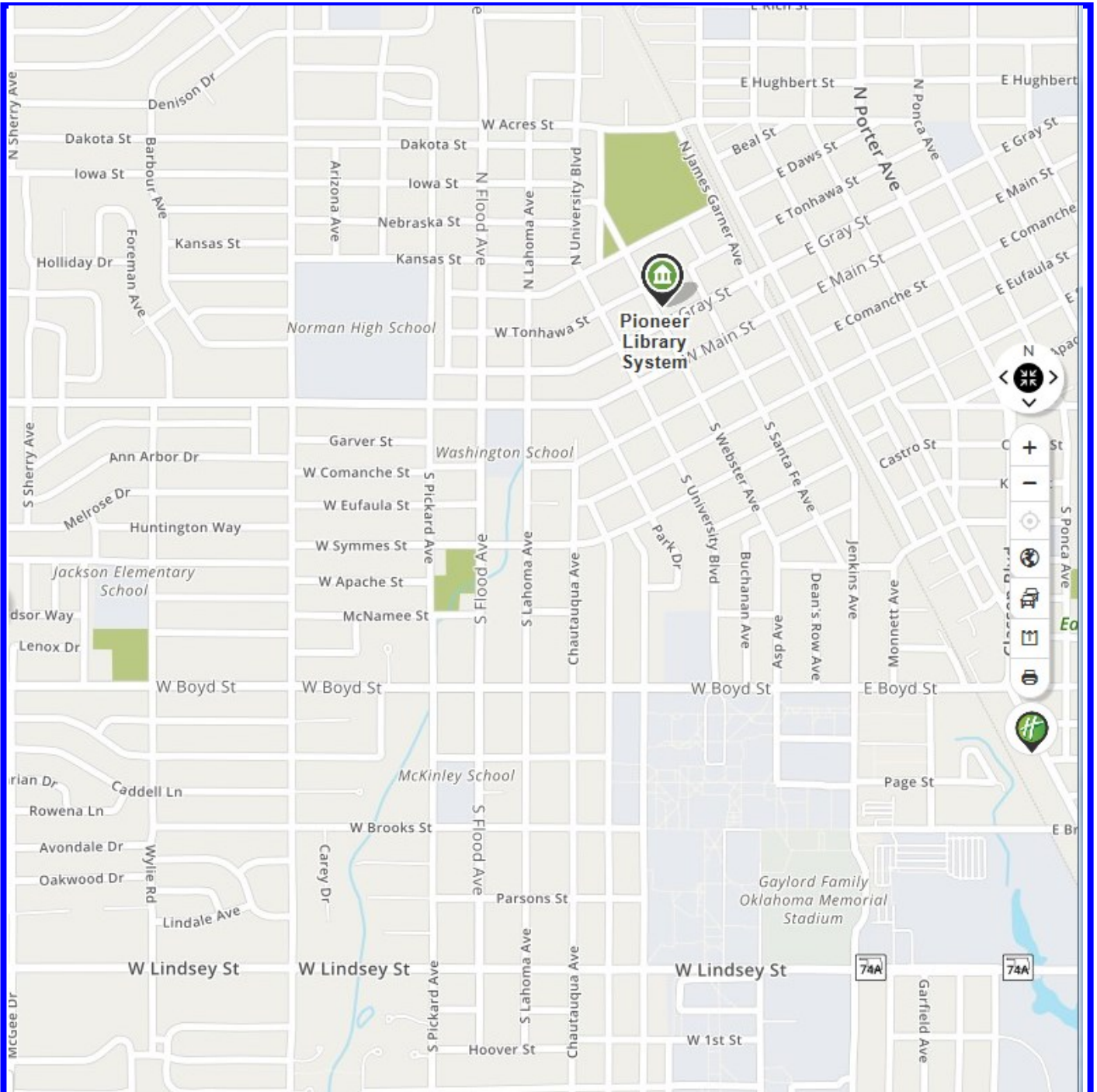
### Laser maze



					
<b>Prairie Mole Cricket</b> Merritt Middle School Elk City	<b>Cicada Killer</b> Peckham Elementary School Newkirk	<b>Flower Fly</b> Tannehill School McAlester	<b>Luna Moth</b> Tuttle Intermediate School Tuttle	<b>Robber Fly</b> Verdigris Elementary School Claremore	<b>Ladybug Larva</b> The Academy of Classical Christian Studies

## 2018 Ugly Bug Winners





### **Directions to Kids' Night with a Microscope:**

**From the University of Oklahoma travel north (from wherever parked) to Boyd Street. Use the above map to locate Asp Ave. Turn north on Asp Ave. Asp Ave. becomes Webster Ave. On Webster Ave. travel north to Norman Public Library Central, 225 N. Webster, Norman OK.**

**Parking at the library is free.**

# Directions to the OMS Spring Meeting

## Driving Directions

- From I-35, take the Main St./Eastbound exit
- On Main St., continue approx. 2 miles to University Blvd. Turn RIGHT
- Continue on University until you reach Boyd Street. See campus map and parking information below to choose Visitor Parking.

## Parking Information for the OMS Spring Meeting

Visitor parking permits are available online, or from OU Parking Services, 1332 Jenkins Ave., inside the Jenkins Avenue Parking Facility.

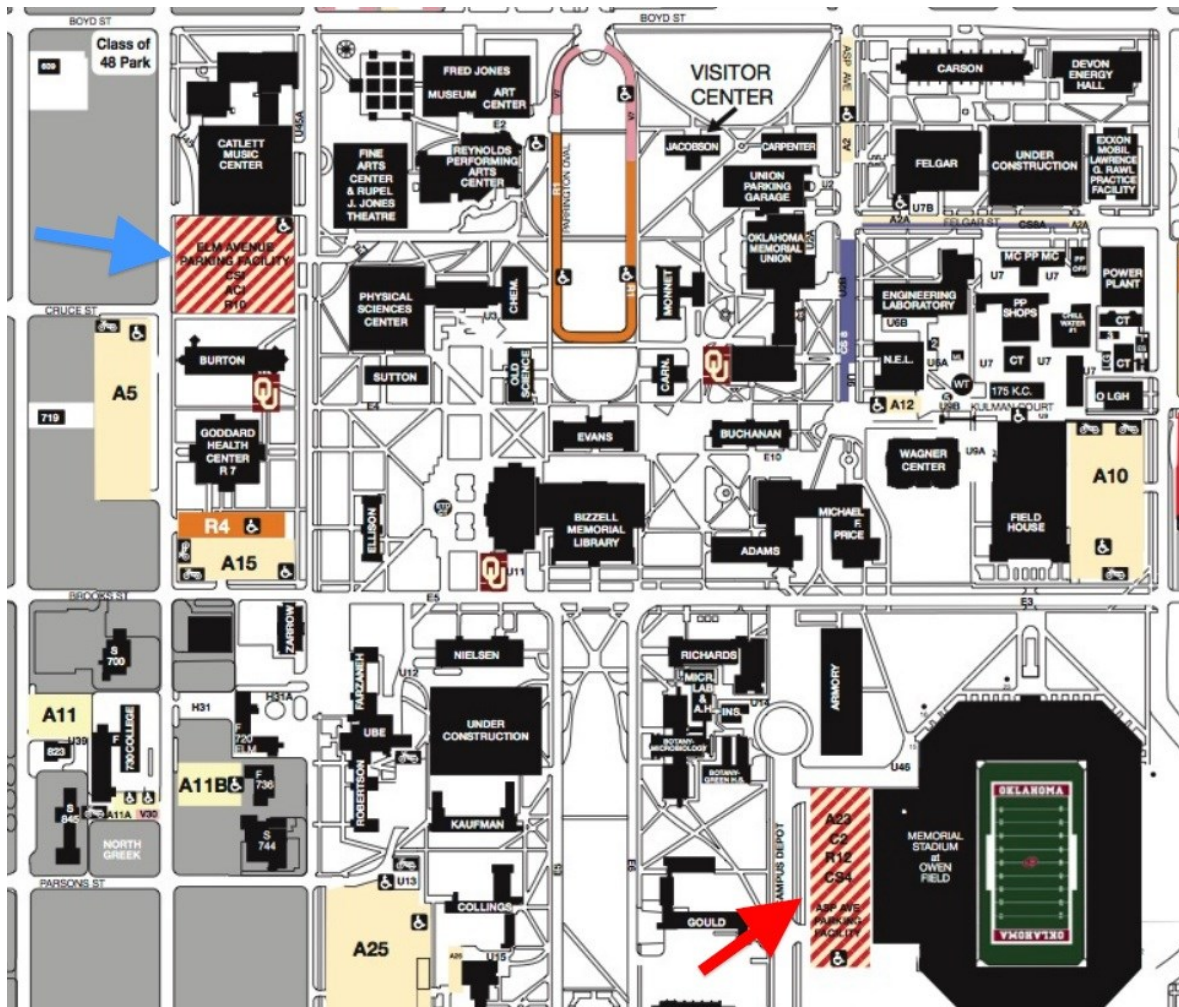
Pay stations are also available in both Asp and Elm garages (indicated by red and blue arrows in below map) and in the lot on Boyd Street across from Fred Jones museum.

You may call OU Parking Services at (405) 325-3311 for more information.

- Visitor permits are valid in all visitor parking spaces as well as any commuter, housing, multipurpose and faculty/staff lots.
- Visitor permits are only valid with the current date on the front of the permit.

Visitor Permits are **NOT** valid in the following areas:

- North (Parrington) Oval prior to 5 p.m.
- Service vehicle areas south of Lindsey Street.
- Service vehicle areas north of Lindsey Street prior to 5 p.m.
- Any "No Parking" area.

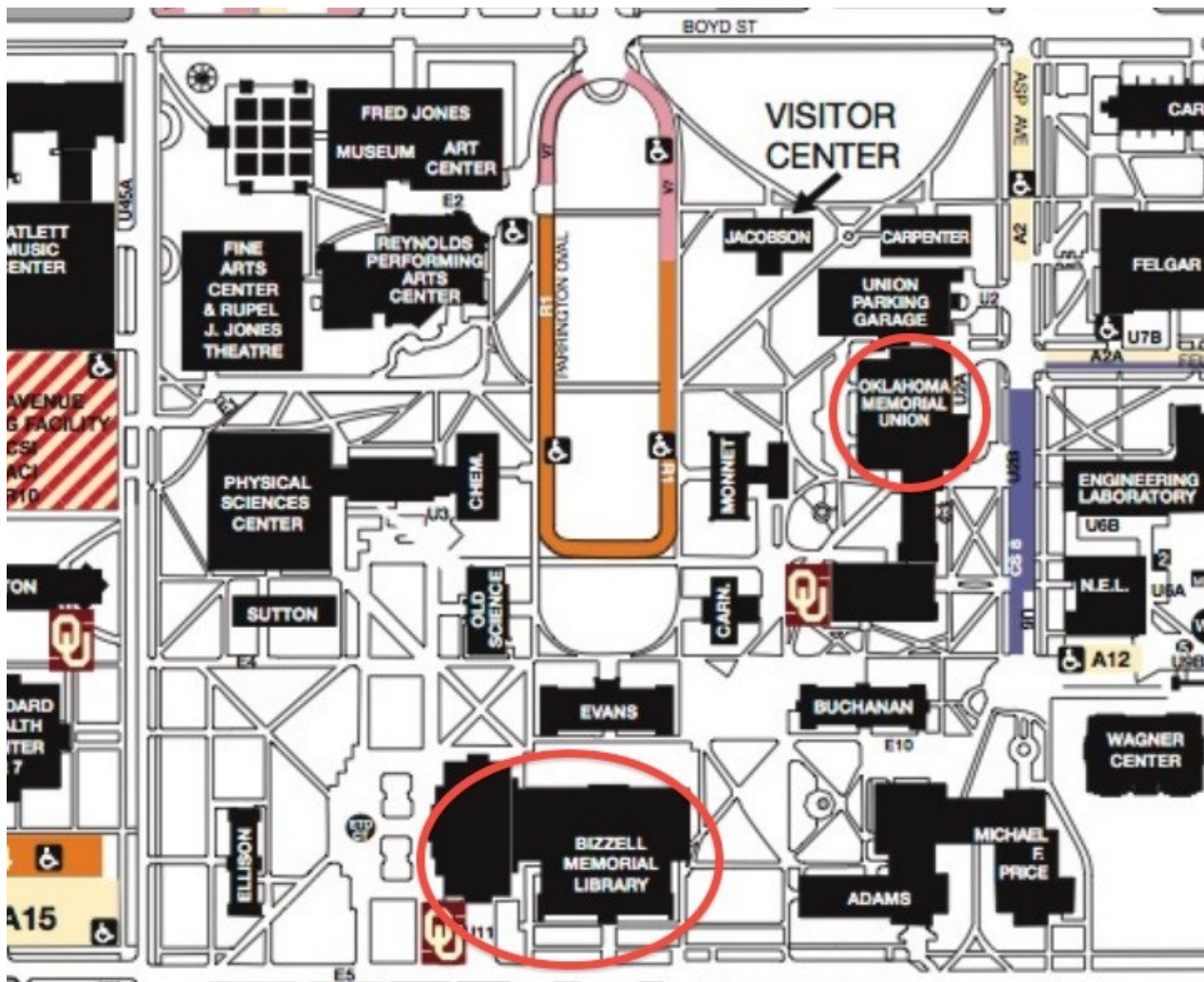




## OU Campus Map and Meeting Locations

On March 7, 2019, the ImageJ/FIJI Image Analysis Workshop will be held in the Bizzell Library Helmerich Collaborative Learning Center classroom (LL123). (circled at bottom in below map)

On March 8, the meeting will be held in the Memorial Union Regents/ Associates room (3<sup>rd</sup> floor). (also circled in map, at right)





# OMS 2019 SPRING MEETING SCHEDULE

**DATE: March 7 – 8**  
**University of Oklahoma,**  
**Norman OK**

## Thursday, March 7

- 09:00 AM – 04:00 PM ImageJ Image Analysis Workshop *OU Library*  
*Advanced registration required*
- 06:00 PM – 08:00 PM Kids Night with Microscope *Norman Central Library*  
*Advanced registration required*

## Friday, March 8

*OU union regents & associates room*

- 08:00 AM – 10:00 AM Registration open
- 08:30 AM – 09:30 AM Continental Breakfast
- 09:00 AM – 09:20 AM OMS President speech
- 09:30 AM – 10:30 AM Invited Speaker: **Dr. Liangzhong (Shawn) Xiang, OU**  
*Photoacoustic Microscopy and Its Applications in Biomedicine and Nondestructive Testing*
- 10:30 AM – 11:00 AM OMS Student Best Micrograph Contest voting
- 11:00 AM – 12:00 PM Invited Speaker: **Dr. Qinggong Tang, OU**  
*Novel Technologies and Applications for Fluorescent Lamellar Optical Tomography*
- 12:00 PM – 02:00 PM Lunch and meeting with Vendors**  
 Continue voting for Student Best Micrograph Contest
- 02:15 PM – 03:00 PM Tour to Samuel Roberts Noble Microscopy Laboratory
- 02:15 PM – 04:00 PM Demo of Leica GP2 Cryo-plunger freezer
- 03:00 PM – 04:00 PM Demo of Cryo – TEM test imaging with JEOL 2010 high resolution TEM and Direct Electron Detector

For any question please contact Dr. Tingting Gu (Tingting.Gu-1@ou.edu).



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# ImageJ/Fiji Digital Image analysis workshop



**March 7<sup>th</sup> 9 am – 4 pm**

University of Oklahoma

Bizzell Library Helmerich Collaborative Learning Center  
classroom (LL123)

**Instructor: Dr. Tingting Gu**

**Workshop description:** introduction to ImageJ, an open source image processing program for scientific image analysis. Fiji is an image processing package – a “batteries-included” distribution of ImageJ. This workshop using real imaging data addresses common image processing and analysis problems. It also provides hands on activities for attenders to practice.

*Morning section: 9am – 12 pm for beginner*

Introduction to digital imaging, basic ImageJ functions, measurement, filtering, background subtraction, cell counting, particle analysis, ethics on image processing etc.

*Afternoon section: 1pm – 4 pm for intermediate to advanced level*

Thresholding, image segmentation, morphological filters, working with plugins, 3D object counting, single particle tracking, the Fourier transform etc.

**Who to attend:** All faculty, postdocs, graduate students, and researchers who are interested in imaging processing and analysis.

**How to attend:** Limited seats available. Please register through the following link: <https://goo.gl/forms/kImnH41950AbsK6Q2>

**What to bring:** a computer and a workshop program will be provided. You may also bring your own computer.

Light refreshment will be provided.

Please contact Dr. Tingting Gu ([Tingting.Gu-1@ou.edu](mailto:Tingting.Gu-1@ou.edu)) for any questions.



# SPRING 2019 WORKSHOP



2019 OMS SPRING MEETING FRIDAY, MARCH 9<sup>th</sup> 9:00 am – 5:00 pm

## Best Micrograph Contest

### WHO TO ENTER

All students!

Must be a OMS member to win any prize.

Member fee for student: \$5.00

### HOW TO ENTER

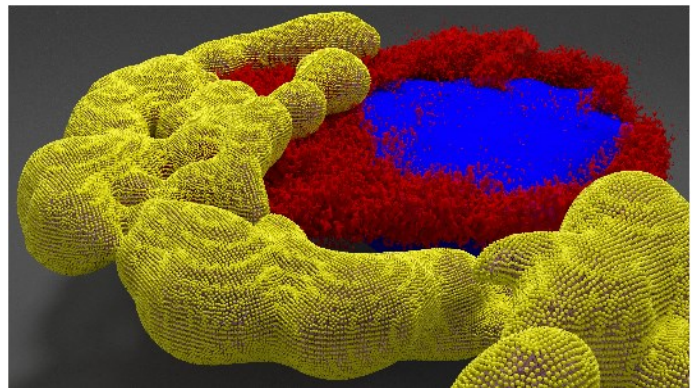
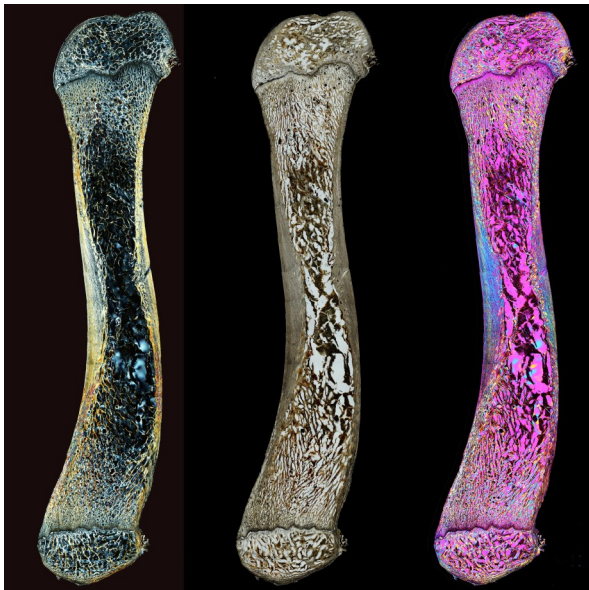
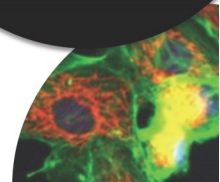
- Send your best digital "Prize-Winning" micrograph to the OMS Student Micrograph Contest Committee [bill.meek@okstate.edu](mailto:bill.meek@okstate.edu).
- A description of the micrograph including the information of the subject in the micrograph, how the sample was prepared and the conditions under which the image was taken (up to 100 words).
- Student does not have to present to win.

**Deadline: March 4<sup>th</sup> by 5pm**

Thank you for  
our sponsor



**1<sup>ST</sup> PRIZE**  
\$100 + COVER  
OF FALL  
NEWSLETTER  
**2<sup>ND</sup> PRIZE**  
\$50



2018 winning image at left, by Christian Heck.  
2nd place 2018 image above, by Michael  
Anderson. More information can be found  
here:

<http://www.ou.edu/research/electron/oms/>



## **Liangzhong (Shawn) Xiang, Ph.D.**

Website: <http://truelab.ou.edu>

### **Assistant Professor**

Liangzhong (Shawn) Xiang received his Ph.D. degree in Biomedical Optics from South China Normal University in 2010. Prior to joining the University of Oklahoma (OU) in 2015, he was the PI of the U.S. Department of Defense (DoD) Prostate Cancer Postdoctoral Training Program at Stanford University (2012-2015). He spent one year as a postdoctoral fellow at University of Florida–Biomedical Engineering Department, before went to Stanford in 2011.

Dr. Xiang has received many awards and honors for his work, including the *DoD Prostate Cancer Research Program Award*, the *Slvia Sorkin Greenfield Award* for the best paper of the *Medical Physics* at AAPM 50th Annual Meeting. He is a member of the *OSA*, *SPIE*, *RSNA*, and *AAPM*, and has served as an associate editor of *Medical Physics* journal.

His group at OU is working on the development of novel biomedical imaging techniques, including laser induced photoacoustic tomography (PAT), X-ray acoustic computed tomography (XACT) and other radiation induced acoustic emission for imaging and therapy.

Presentation Title:

### **Photoacoustic Microscopy and Its Applications in Biomedicine and Nondestructive Testing.**

Modern optical microscopy has resolution and diffraction limitations. Photoacoustic microscopy (PAM) has overcome these limits by acoustically detecting optical absorption contrasts via the photoacoustic effect. It offers label-free in vivo imaging with high spatial resolution. This opens up applications in brain function imaging and noninvasive cancer imaging. Dr. Xiang will also introduce the new research directions in his lab on X-ray induced acoustic computed tomography (XACT) and Proton-induced Acoustic Imaging (PAI) and its application in biomedical and Nondestructive Testing (NDT).



## **Qinggong Tang, Ph.D.**

Assistant Professor

Stephenson School of Biomedical Engineering,  
University of Oklahoma

### **Biography:**

Dr. Qinggong Tang is an Assistant Professor at the Stephenson School of Biomedical Engineering, University of Oklahoma. He received his Bachelor's degree in Optoelectronics from Huazhong University of Science and Technology, Wuhan, China, in 2012 and his PhD in Bioengineering from [the University of Maryland, College Park](#). His interests include optical coherence tomography, multiphoton microscopy, fluorescence laminar optical tomography, development of novel quantitative multi-modal optical imaging devices and their applications in brain functional imaging, tissue engineering, clinical translation and cancer research. His research has been published in *Journal of Controlled Release*, *Biotechnology and Bioengineering*, *Scientific Reports*, *Biomedical Optics Express*, etc. He has been invited to give talks at many renowned conferences and has been reviewer for: *Light: Science & Applications*, *Scientific Reports*, *Oncotarget*, *Biomedical Optics Express*, etc.

# Qinggong Tang, Ph.D. continued

## Novel Technologies and Applications for Fluorescent Laminar Optical Tomography

### Summary

[Laminar optical tomography](#) (LOT) is a mesoscopic three-dimensional (3D) optical imaging technique that can achieve both a resolution of 100-200  $\mu\text{m}$  and a penetration depth of 2-3 mm based either on absorption or [fluorescence](#) contrast. [Fluorescence laminar optical tomography \(FLOT\)](#) can also provide large field-of-view (FOV) and high acquisition speed. All of these advantages make FLOT suitable for 3D depth-resolved imaging in tissue engineering, neuroscience, and oncology. In this study, by incorporating the [high-dynamic-range \(HDR\) method](#) widely used in digital cameras, we presented the [HDR-FLOT](#). HDR-FLOT can moderate the limited dynamic range of the charge-coupled device-based system in FLOT and thus increase penetration depth and improve the ability to image fluorescent samples with a large concentration difference. For functional mapping of brain activities, we applied FLOT to record 3D neural activities evoked in the whisker system of mice by deflection of a single whisker *in vivo*. We utilized FLOT to investigate the cell viability, migration, and bone mineralization within bone tissue engineering scaffolds *in situ*, which allows depth-resolved molecular characterization of engineered tissues in 3D. Moreover, we investigated the feasibility of the multi-modal optical imaging approach including high-resolution optical coherence tomography (OCT) and high-sensitivity FLOT for structural and molecular imaging of colon tumors, which has demonstrated more accurate diagnosis with 88.23% (82.35%) for sensitivity (specificity) compared to either modality alone. We further applied the multi-modal imaging system to monitor the drug distribution and therapeutic effects during and after Photo-immunotherapy (PIT) *in situ* and *in vivo*, which is a novel low-side-effect targeted cancer therapy.

### References

- Q. Tang, T. Nagaya, Y. Liu, H. Horng, J. Lin, K. Sato, H. Kobayashi, and Y. Chen, "3D Mesoscopic Fluorescence Tomography for Imaging Micro-distribution of Antibody-photon Absorber Conjugates during Photoimmunotherapy *in vivo*". *Journal of Controlled Release* 279, 171-180 (2018) Featured on Journal Cover
- Q. Tang, C. Piard, J. Lin, K. Nan, T. Guo, J. Caccamese, J. Fisher and Y. Chen, "Imaging stem cell distribution, growth, migration, and differentiation in 3-D scaffolds for bone tissue engineering using mesoscopic fluorescence tomography," *Biotechnology and Bioengineering*. (2017). DOI:10.1002/bit.26452
- Q. Tang, Y. Liu, V. Tsytsarev, J. Lin, B. Wang, U. Kanniyappan, Z. Li and Y. Chen, "High-dynamic-range fluorescence laminar optical tomography (HDR-FLOT)," *Biomedical optics express* 8(4), 2124-2137 (2017)
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- Q. Tang, V. Tsytsarev, A. Frank, Y. Wu, C. W. Chen, R. S. Erzurumlu and Y. Chen, "In Vivo Mesoscopic Voltage-Sensitive Dye Imaging of Brain Activation". *Sci. Rep.* 6, 25269; doi: 10.1038/srep25269 (2016).

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Spring Meeting 2019



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## UPCOMING MICROSCOPY MEETINGS . . .

# Oklahoma Microscopy Society

## Fall Meeting 2019

The 108th Annual Technical Meeting of the Oklahoma Academy of Science will be held on Friday, November 8, 2019 at the University of Central Oklahoma in Edmond, OK. Registration and call for presentations will take place in late Summer 2019.



## Microscopy and Microanalysis

**Microscopy & Microanalysis 2019**

**August 4-8, 2019**

**Portland, OR**



**Microscopy & Microanalysis 2020**

**August 2-6, 2020**

**Milwaukee, WI**

## FALL 2018 OMS MEETING



The Fall 2018 Oklahoma Microscopy Society Meeting was held in conjunction with the 107th Annual Technical Meeting of the Oklahoma Academy of Science. It was held November 2, 2018 at Southwestern Oklahoma State University in Weatherford, Oklahoma.

Shown above is student speaker Dohyung Markus Kim, whose presentation was titled "Arrested Neuromuscular Development of *Drosophila melanogaster* mutation 18507". Co-authors for the presentation were Ranish Timilsina and OMS president Tingting Gu.

Also presenting were Scott Russell and Preston Larson, of the University of Oklahoma Samuel Roberts Noble Microscopy Lab. Their presentation was titled "Acquisition of a Direct Electron DE-12 Camera for OU's JEOL 2010F".

# CONSTITUTION & BYLAWS OF THE OMS

## Article I. NAME

The name of this organization shall be the Oklahoma Microscopy Society. The acronym shall be OMS. OMS is a non-profit organization.

## Article II. PURPOSE

The purpose of OMS shall be the advancement of the science of microscopy in Oklahoma and nationally by:

- encouraging the dissemination of knowledge of microscopy including its technology and instrumentation.
- promoting the free exchange of ideas and data among interested individuals and
- encouraging interdisciplinary interaction between microscopists.

## Article III. MEMBERSHIP

### Section 1. Types:

Regular membership shall be open to any person who has an interest in microscopy.

Corporate membership shall be open to any commercial or non-profit organization that has an interest in microscopy. A member organization may designate one representative to receive all privileges of membership. Other members of the same organization may become regular members.

Honorary membership may be given to a person named an Honorary member by vote of the Executive Committee.

Section 2. Enrollment: Any eligible person or organization may make application for membership to the Executive Committee of OMS. Completed application forms shall be submitted to the Secretary-Treasurer of OMS with one year's dues.

Section 3. Privileges: All members have the right to vote at any business meetings held by OMS and to hold elective office.

### Section 4. Dues:

Annual dues shall be five dollars for Regular membership for students, fifteen dollars for Regular membership for non-students, and fifty dollars for Corporate membership.

Dues shall become payable on July 1 of each year for the following twelve months.

Any member that is delinquent in payment of dues for a period of six months shall be dropped from membership. Members thus dropped may be reinstated thereafter by paying one year's delinquent dues and the current year's dues.

## Article IV. MEETINGS

At least one business meeting per year shall be held. The time(s) and place(s) of such meetings shall be designated by the Executive Committee and duly announced. Business meetings shall be conducted according to Robert's Rules of Order.

# CONSTITUTION & BYLAWS OF THE OMS

## Article V. OFFICERS

Section 1. The officers of OMS shall be a President, a President-Elect, a Secretary-Treasurer, a Member-at Large for Biological Sciences, a Member-at Large for Physical Sciences, and a Member-at Large for student members. These officers shall perform the duties prescribed by these bylaws and by the parliamentary authority adopted by the Society.

### Section 2. Duties:

- a. The President shall preside at all meetings of the Executive Committee and business meetings of the OMS and promote the interests of OMS both within the state and nationally.
- b. The President-Elect shall assist the President, substitute for him/her when necessary, perform any duties assigned by the President and be responsible for organizing the regular spring workshop/seminar.
- c. The Secretary-Treasurer shall maintain records of OMS and communicate with members. This officer shall be custodian of OMS funds, collect all dues, notify members delinquent in membership and account for OMS funds in accordance with accepted business practice.
- d. Members-at-Large shall represent their respective constituents.

### Section 3. Term of Office:

The President, President-Elect, and Members-at-Large shall each serve for one year beginning July 1 and ending June 30 of the following year.

The Secretary-Treasurer shall serve for two consecutive years beginning July 1 and ending July 30 of the second following year.

### Section 4. Election: Officers shall be elected as prescribed in Article VII of these bylaws.

Section 5. Vacancies: If the President cannot serve, the President-Elect shall immediately succeed to that office. If the President-Elect or any other officer cannot serve for any reason, the Executive Committee shall appoint a person to serve pro tem in the vacant office. Any such appointed officer shall be replaced by one duly elected at the next annual election in May.

## Article VI. EXECUTIVE COMMITTEE

Section 1. Composition: The Executive Committee shall consist of the officers of OMS, plus the Newsletter Editor ex officio who shall be without vote.

### Section 2. Duties:

The Executive Committee shall conduct the business of OMS as specified herein and otherwise as neces-

# CONSTITUTION & BYLAWS OF THE OMS

sary, and shall advise the membership on matters concerning the management of OMS. It shall appoint the Newsletter Editor.

The Executive Committee shall hold not fewer than two meetings annually, on call of the President or a majority of its members.

## **Article VII. ELECTIONS**

Section 1. Nominations of officers except the President shall be made by a nominating Committee appointed by the President and approved by the Executive Committee. This Committee shall consist of five persons, at least one of whom is from the field of Biological Sciences and one from the field of Physical Sciences. Nominations may be solicited from the membership at any time.

Section 2. The Nominating Committee shall present a slate of consenting candidates (two for each office) to the President prior to the spring general business meeting. The President and Secretary-Treasurer shall announce this list to the membership at the spring general business meeting. Additional nominations of persons willing to serve may be solicited from the floor at this time.

Section 3. The Secretary-Treasurer shall prepare and mail ballots to all members by May 15 and shall accept ballots until May 31.

Section 4. Ballots shall be counted by at least two Executive Committee members and may be reviewed by the entire board if deemed necessary. In each case the candidate receiving the largest number of votes shall be declared elected. Any tie shall be resolved by vote of the combined Executive and Nominating Committees. Results shall be announced by the Secretary-Treasurer at the next business meeting or by mail to all members.

## **Article VIII. AD HOC COMMITTEE**

The President shall appoint ad hoc committees as necessary or helpful in managing affairs of OMS. Committee members shall be considered automatically discharged at the end of the appointing President's term of office unless the new President specifically requests that they continue. The committee itself shall continue until its purpose has been fulfilled or it is dissolved by vote of the executive board or the membership at large.

## **Article IX. AMENDMENTS**

Section 1. Amendments may be suggested at any OMS business meeting. However, amendments to these bylaws may be formally proposed in only two methods:

By the Executive Committee or

By petition of ten percent of the members.

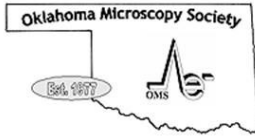
Section 2. The proposed amendment shall then be promptly submitted by mail to the membership by the Secretary-Treasurer, along with the signed statement of reasons for support and/or opposition. Returned ballots shall be ac-

cepted by the Secretary-Treasurer for three weeks after the date of mailing. The Executive Committee shall count the ballots and the amendment(s) shall be declared ratified if a two-thirds majority of the votes cast is favorable.

Section 3. Any member who so desires may be present at the counting of such ballots.

**Article X. DISSOLUTION**

In the event of the dissolution of the OMS, upon the discharge of all its debts and obligations, any remaining assets shall be given to such tax-exempt scientific organization as the Executive Committee may determine. In no case shall any assets be used for the direct benefit of any member of OMS.



**Oklahoma Microscopy Society**  
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**for 2019-2020**



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**Scott Russell, OMS Secretary-Treasurer**

Samuel Roberts Noble Microscopy Lab

770 Van Vleet Oval, GLCH rm 136

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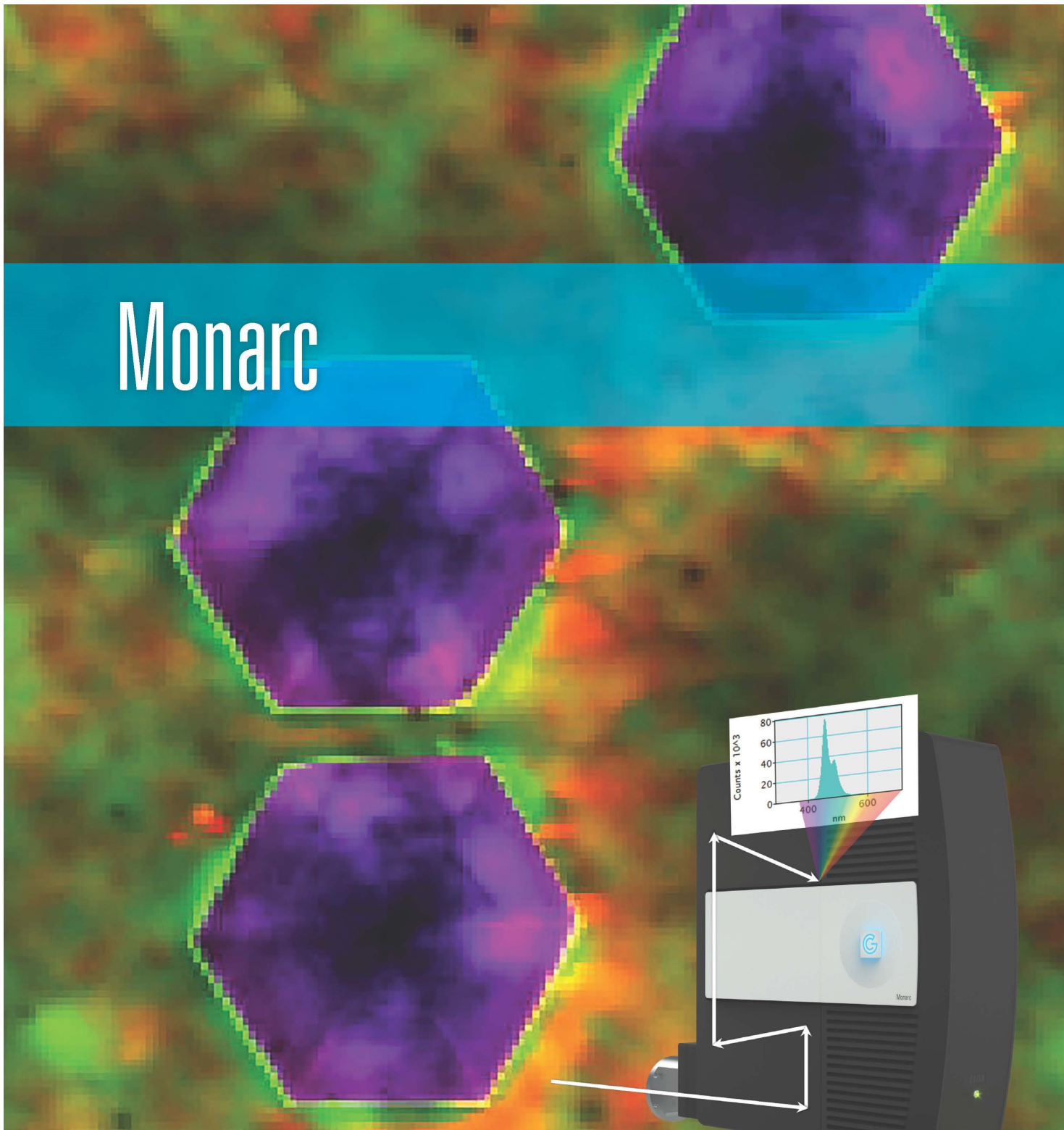
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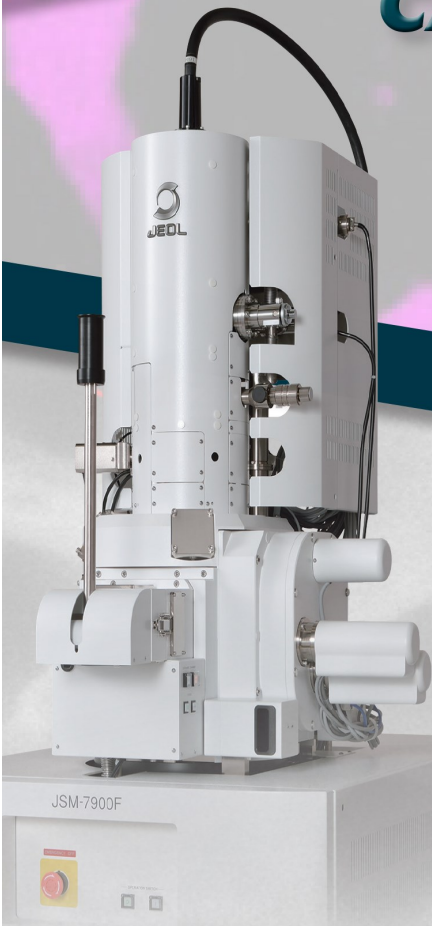
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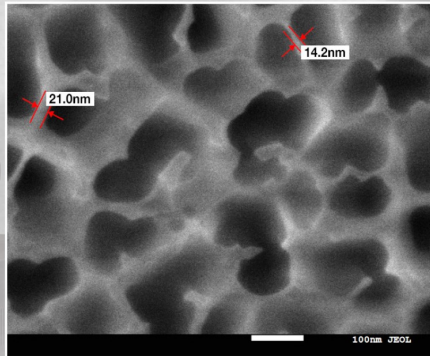
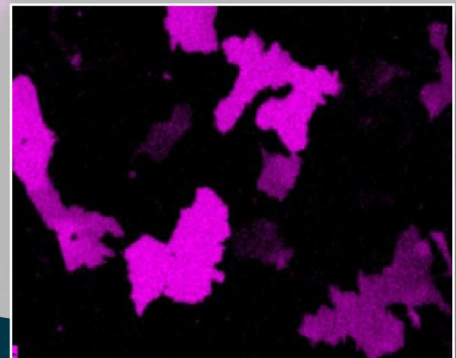
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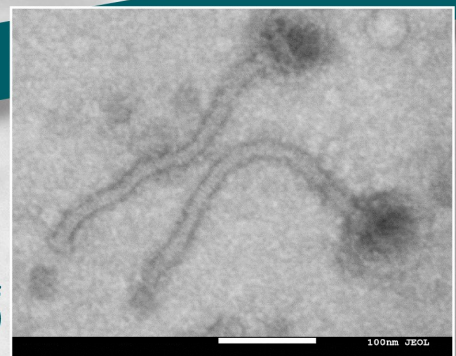
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