



**Southern California Society
for
Microscopy & Microanalysis**

Fall Meeting

**Wednesday
November 14, 2018
Starts at 5:30 pm**



Invited Talks:

Dr. Elena A. Miranda

Professor of Geology

California State University Northridge

**“Using electron backscatter diffraction (EBSD) analysis
to unlock a history of repeated earthquake rupture in
the deep crust”**

Dr. Jacob M. Berlin

Associate Professor

City of Hope Beckman Research Institute

**“Nanomaterials for targeted drug delivery and drug
discovery”**

**Address: City of Hope
Arnold and Mabel Beckman Center
Argyros Auditorium
1500 East Duarte Road
Duarte, CA 91010-3000
Tel: 626-301-8265**



Dear SCSMM members:

Welcome to the SCSMM 2018-2019 program!

I am excited to announce our 2018 fall meeting to be held at City of Hope, Beckman Center, Argyros Auditorium on November 14th (one week before Thanksgiving). For the scientific program, we are delighted to have invited Dr. Elena Miranda as the speaker of material science, and Dr. Jacob Berlin as the speaker of life science. I hope you all enjoy an evening of science, food, and networking before the holiday season.

We are excited to welcome Dr. Elena Miranda and Dr. Adam Stieg to join SCSMM board. Our 2019 Spring Symposium will be a full-day meeting featuring exciting scientific talks, student platform presentations, and vendor talks. We will have vendor demonstrations of newest products and latest technology. The details of our Spring Symposium will appear on the SCSMM website and Facebook pages early 2019.

Our meetings wouldn't be possible without the continuous support we receive from our corporate members and sponsors of all levels. You can find the full list here and on the SCSMM website.

I am looking forward to seeing you all on November 14th!

Zhuo Li

President, SCSMM

SCSMM 2018 Fall Meeting Schedule

| | |
|---------|---|
| 5:30 pm | Happy Hour |
| 6:30 pm | Dinner |
| 7:15 pm | Business Meeting |
| 7:25 pm | Using electron backscatter diffraction (EBSD) analysis to unlock a history of repeated earthquake rupture in the deep crust Elena Miranda, <i>Cal State Northridge</i> |
| 8:05 pm | Vendor talk |
| 8:20 pm | Nanomaterials for targeted drug delivery and drug discovery Jacob Berlin, <i>City of Hope</i> |

Registration & RSVP

RSVP is required

Due to the generous support of our corporate members, registration for this meeting is included in the membership dues.

Respond no later than 5 p.m. Friday, November 9, 2018

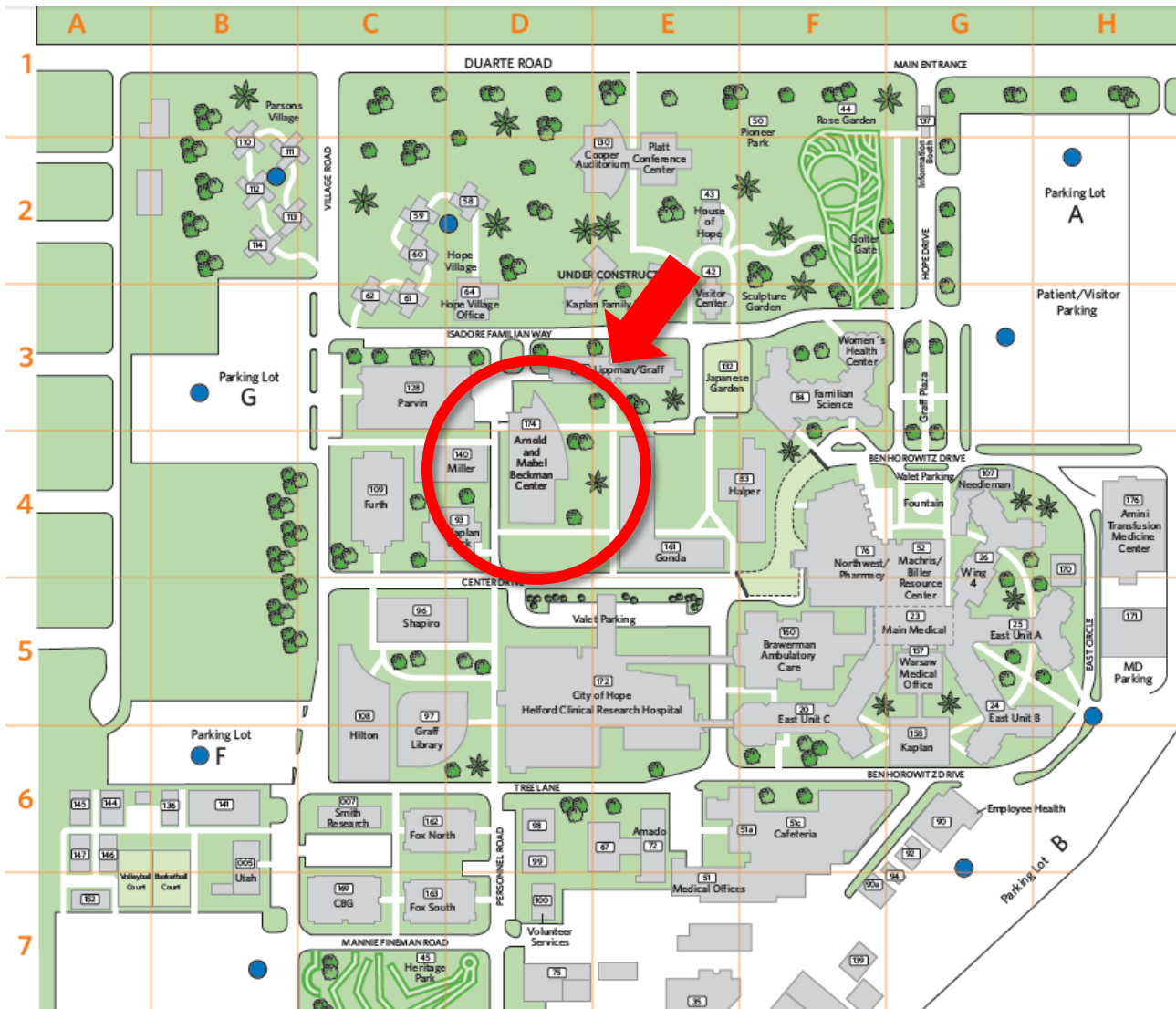
Please sign up [here](https://imri.uci.edu/content/2018-fall-meeting-registration#overlay-context=content/2018-fall-meeting-registration) (<https://imri.uci.edu/content/2018-fall-meeting-registration#overlay-context=content/2018-fall-meeting-registration>)

Regular annual membership for 2018-2019 is \$25 (\$10 for students). For further details visit SCSMM web site
www.scsmm.org

Map and Directions

For the Map and Directions to **City of Hope - Duarte** please refer to:

<http://www.cityofhope.org/maps-and-directions>



Parking is free: Lots **A** and **G** are the closest to the **Arnold and Mabel Beckman Center**.

The location of **Arnold and Mabel Beckman Center** is circled in red in the campus map. The **Argyros Auditorium** is on the first floor.



Southern California Society for Microscopy & Microanalysis

Membership Application 2018 - 2019

The Southern California Society for Microscopy and Microanalysis (SCSMM) is a non-profit organization dedicated to advancing the knowledge in all areas of microscopy and microanalysis, including, but not limited to: transmission electron microscopy, scanning electron microscopy, electron microprobe, ion probe, microbeam analysis, optical and confocal microscopy, and microspectroscopy. You are invited to join and renew your membership.

The Society is one of the local affiliated societies to Microscopy Society of America (MSA, <https://www.microscopy.org>). We meet twice a year at locations in the greater Los Angeles area. In the fall is an evening dinner followed by one or two speakers. In the spring is a full-day symposium featuring scientific talks from biological, medical and physical sciences, vendor talks and exhibitions, and student presentations.

SCSMM Regular and Student memberships are offered to individuals and are renewed every academic year. Corporate membership is offered to organizations, which entitles two individuals to attend SCSMM meetings. Corporate membership is acknowledged in SCSMM meeting announcements and newsletters that are sent to SCSMM members. Corporate members are invited to sponsor SCSMM meetings at Gold, Silver, or Bronze levels. Please see Vendor Sponsorships for details. For more information on corporate membership, please contact Brian Miller (503-984-0191, Brian.Miller@bruker.com).

To join SCSMM online and attend SCSMM meetings, please register online (<https://imri.uci.edu/content/2018-fall-meeting-registration#overlay-context=content/2018-fall-meeting-registration>). Alternatively, you may fill the Membership Application Form and bring it to SCSMM meetings.



*Southern California Society
for
Microscopy & Microanalysis*

Membership Application 2018 - 2019

Name: _____

Institution: _____

Address: _____

City, State, Zip _____

Phone: _____

E-mail address: _____

Web Site: _____

Please check the appropriate membership category:

- Regular @ \$25.00
- Student @ \$10.00

Please attach a check for the appropriate amount made payable to SCSMM. You may bring this form along with your dues to any of our meetings or mail to:

SCSMM c/o Sarah Dunn

Mailing Address:

PO Box 928607

San Diego, CA 92192

SCSMM Vendor Sponsorship Benefits and Recognition

- Gold @ \$600.00
- Silver @ \$350.00
- Bronze @ \$250.00
- Corporate @ \$100.00

All Corporate Memberships are entitled to two individual member listings. If you have selected a Corporate Membership, please copy this form and provide details for the second listing. Write “**2nd Listing**” at top of form.

\$600 (Gold) level

Instrumentation display during spring meeting (table)
Scheduled (15 min) talk during spring or fall meeting
Announcement/acknowledgment from the stage as a Gold sponsor of SCSMM
Listing as a Gold sponsor in all press and media materials of the SCSMM
Invitation for two to attend the spring and fall meeting

\$350 (Silver) level

Instrumentation display during spring meeting (table)
Announcement/acknowledgment from the stage as a Silver sponsor of SCSMM
Listing as a Silver sponsor in all press and media materials of the SCSMM
Invitation for two to attend the spring and fall meeting

\$250 (Bronze) level

Announcement/acknowledgment from the stage as a Bronze sponsor of SCSMM
Listing as a Bronze sponsor in all press and media materials of the SCSMM
Invitation for two to attend the spring and fall meeting

\$100 Regular Corporate membership

Listing as a Corporate Member in SCSMM spring and fall pre-meeting newsletters
Invitation for one to attend the spring and fall meetings

Vendors are also most welcome to sponsor with "in-kind" support of our meetings, such as providing wine with dinner (fall meeting) or a prize for a raffle or student talk/poster. Acknowledgements of such sponsorship will be made during the meeting and in the meeting announcement - and are always much appreciated!

Using electron backscatter diffraction (EBSD) analysis to unlock a history of repeated earthquake rupture in the deep crust

Elena A. Miranda

Professor of Geology
California State University Northridge
Department of Geological Sciences

We investigate how the rheological evolution of fault zone rocks from beneath the brittle-ductile transition (BDT) is affected by coeval ductile shear and pseudotachylyte (i.e., frictional melt produced by earthquakes) development associated with seismicity during the earthquake cycle. We focus our study on footwall rocks of the South Mountains core complex fault system in Phoenix, Arizona, and we use electron backscatter diffraction (EBSD) analyses to examine how strain is localized in granodiorite mylonites both prior to and during pseudotachylyte development beneath the BDT. In mylonites that are host to pseudotachylytes, deformation is partitioned into quartz, where quartz exhibits crystallographic-preferred orientation patterns and microstructures indicative of dynamic recrystallization during dislocation creep. Grain size reduction during dynamic recrystallization led to the onset of grain boundary sliding (GBS) accommodated by fluid-assisted grain size-sensitive (GSS) creep, localizing strain in quartz-rich layers prior to pseudotachylyte development. The foliation-parallel zones of GBS in the host mylonites, and the presence of GBS traits in polycrystalline quartz survivor clasts indicate that GBS zones were the ductile precursors to in situ pseudotachylyte generation. During pseudotachylyte development, strain was partitioned into the melt phase, and GSS deformation in the survivor clasts continued until crystallization of melt impeded flow, inducing pseudotachylyte development in other GBS zones. We interpret the coeval pseudotachylytes with ductile precursors as evidence of seismic events near the BDT. Grain size piezometry yields high differential stresses in both host mylonites (~160 MPa) and pseudotachylyte survivor clasts (> ~200 MPa), consistent with high stresses during interseismic and coseismic phases of the earthquake cycle, respectively.

Biography: Dr. Elena Miranda is a Professor of Geology in the CSUN Department of Geological Sciences, where she serves as the faculty director of the Geological Sciences scanning electron microscopy facility. She received her B.S. degree in Geology from Southern Methodist University, and her Ph.D. in Geology from the University of Wyoming. She is a field- and lab-based structural geologist who focuses her research on the deformation of Earth



materials in fault zones. Dr. Miranda's expertise lies in using microstructural and electron backscatter diffraction analysis to characterize the rheology of ductile fault rocks in the deep crust. Her research group is currently working on fault systems in Phoenix, Arizona; Palm Springs, California; and Fiordland National Park, New Zealand.

Nanomaterials for targeted drug delivery and drug discovery

Jacob M. Berlin

Associate Professor
Department of Molecular Medicine
City of Hope
1710 Flower Ave, Duarte, CA 91010
jberlin@coh.org

The use of nanoparticles for targeted delivery to treat ovarian cancer will be discussed. Two different modalities will be considered: nanoparticles that are packaged into neural stem cells for delivery to ovarian tumors and a different class of nanoparticles that alone efficiently target tumor associated macrophages for precision immunotherapy. A novel platform for ultra-high throughput drug discovery will also be presented.

Biography: Dr. Berlin received his bachelor's degree, magna cum laude, in chemistry from Harvard University where he worked in the Jacobsen lab. He received his Ph.D. from the California Institute of Technology where he worked with Nobel Laureate Bob Grubbs. He did a postdoc with Greg Fu at MIT. In all three cases, he worked on enantioselective catalysis. He then shifted fields to the use of nanomaterials for health applications during a postdoc at Rice University with James Tour.

Dr. Berlin joined the Department of Molecular Medicine, Beckman Research Institute of City of Hope (Duarte, CA) in 2010 as an Assistant Professor and he was promoted to Associate Professor in 2016. His group's work on using nanomaterials to discover new therapeutics and to detect and treat cancer has been featured on the covers of several journals, including *Advanced Healthcare Materials* and *Bioconjugate Chemistry*. Dr. Berlin was noted as one of the "Rising Stars and Young Nanoarchitects in Materials Science" by the Royal Society of Chemistry and was nominated for the Kabiller Young Investigator Award in Nanoscience and Nanomedicine. His group's research has been supported by a number of grant agencies, including NCI, NINDS, Mary Kay, Margaret Early, STOP Cancer, Markel Foundation and the Gilbert Foundation.



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