

A grayscale electron micrograph showing cellular ultrastructure, including what appears to be a nucleus with a nucleolus and various organelles.

MAY 2018

VOL 1 - ISSUE 1

News @eml_ucb

Electron Microscope Lab, 26 Giannini Hall, Berkeley, CA 94720
em-lab.berkeley.edu ucbeml@berkeley.edu 510.642.2085

Letter from the (new) Director

Dear EML Community,

It is with great enthusiasm that I officially introduce myself to all of you! Hello! I'm Danielle Jorgens, and last August, I became the new director of the Electron Microscopy Lab (EML). Kent McDonald, PhD, the director of the EML for 25+ years retired in June last year. I'm grateful to Kent and the new Faculty Director of the EML, Dr. Jeff Cox (MCB), for their guidance through the first few months of my tenure here at UCB. Dr. Zac Cande, the previous EML Faculty Director, was instrumental in helping both Jeff and myself take on our new roles.

Much of my experience in EM is based in cell biology, but I have already begun and look forward to expanding my knowledge of EM for materials and other non-biological samples. I earned my PhD in Comparative Biochemistry here at UC Berkeley under the mentorship of Dr. Manfred Auer (LBNL) in 2013. During graduate school, I was extremely fortunate to have trained with your previous EML Director, Kent McDonald. From Kent, I've learned a variety of advanced sample preparation techniques, including cryopreservation via high pressure freezing for cells and tissues for resin-based EM. In 2013, I was recruited to Oregon Health and Science University (Portland, OR) to the lab of Dr. Joe Gray. At OHSU, I mainly focused on applying EM to the intersection between genomics, transcriptomics and ultrastructure in human pancreatic and breast cancer.

During the past several years, I've focused on using and developing

Inside This Issue

- Letter from New Director 1
- A New Home for the EML 2
- New Rates in July 3
- Website Updates 3
- EML Gets Social 4
- Upcoming EM Meetings 4



Letter from the Director continued...

methods for modern EM instruments and techniques including: 3-dimensional electron microscopy (Volume EM: Focused Ion Beam Scanning EM & Serial Block Face Scanning EM), cryotechniques for whole cells and tissues (including High Pressure Freezing and Freeze Substitution), correlative light and electron microscopy (CLEM: fluorescent protein and immunolabeling based), and feature segmentation. I plan to bring my knowledge of these techniques and the enabling technologies to the EML.

In both Berkeley and Portland, I have been extremely fortunate to be part of highly collaborative networks of labs and it is my aim to help expand the reach of the EML here on campus in a similar way. We have begun a campaign of modernization which includes moving to a new facility and bringing in new instruments!

The EML will be seeking funding for new equipment in the coming years; the first priority purchase for the EML is a FIB-SEM capable of 3D dataset collection (slicing and imaging iteratively) and EDX. If you have an interest in being involved with collecting trial datasets with such a technology, please reach out to me and let me know!

I hope you will join us as we journey into the future of EM and that you will be as excited for it as we are. Please read on in the next sections of our newsletter for all the details.

Cheers,

Danielle Jorgens, PhD (dmjorgens@berkeley.edu)



As we move the EML to a new permanent home (in Barker Hall) later in 2018, we look forward to modernizing and hope to be able to serve our userbase more effectively

The EML is Moving to Barker Hall in the Fall

**Tentative Dates
EML will be
CLOSED**

9/15 thru 10/30

Giannini Hall is will be undergoing a building-wide retrofit. As the project geared up, it became clear early-on that the EML would need to move. We are grateful to DBS Dean Dr. Botchan, MCB chairs Drs. Drubin and Patel, and Dr. David King for finding and making space available that will serve as our new permanent home. Our new location will be in the basement of Barker Hall, where we intend to take advantage of being close neighbors of the AIC, MIC, and BIF light microscopy facilities.

The EML will be split between rooms 17 and 3 (basically on either side of the storeroom). Our microscope rooms, wet lab space, and office will be located in room 17. Room 3 will house our HPF, SEM ancillary equipment, and ultramicrotomes. Both spaces must undergo extensive remodeling to accommodate our facility; work will begin this summer.

The timeline for our transition to the new space is tentative for now. We will have much harder dates once construction is underway. However, a loose plan for now is the EML will close in Mid-September to pack and move and we plan to be back up for users about 1 month later (mid-late October).

Our goal during this transition is to be closed for as short of a time frame as possible. We will be communicating with our users via email, the website newsfeed, and via this newsletter.

New Rates Starting FY19 (July 2018)

After 5 years of keeping static rates, our rates will change slightly at the start of fiscal year 2019. The EML must revamp the rates to ensure that we can continue to provide the best possible service and training to our users and students. The new rates take into account increases to the EML for many essential services and components.

Importantly, we will consolidate our microscopes under a single rate for beam time of \$41.50/hour. We expect these to be the actual new rates, but they must go through one additional round of review.

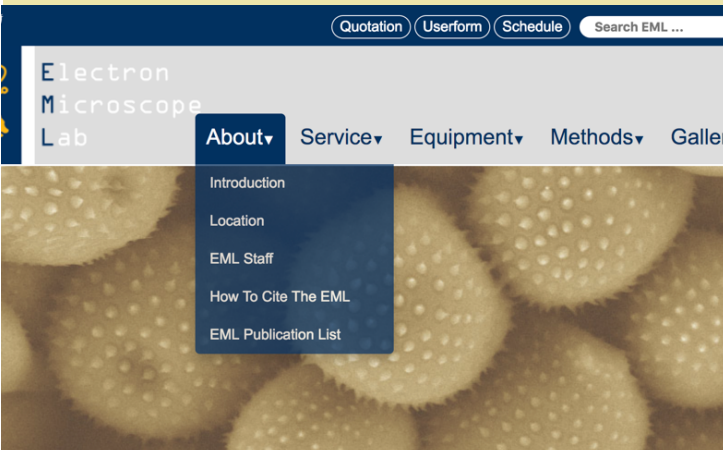
As soon as the new rates are approved we will update the [Charge Rate page of our website](#) to reflect them.

As a recharge unit, our goal is to provide top-notch services at very reasonable rates to all UC researchers. [Please let our director](#) know if you feel these new rates put our services out of reach for your lab.

		NEW
Service/Microscope	FY18	FY19
Tecnai-12 TEM	\$34.00	\$41.50
JOEL TEM	\$34.00	\$41.50
Hitachi TM-1000 SEM	\$30.00	\$41.50
Hitachi S-5000 Fe-SEM	\$68.00	\$41.50
Critical Point Drying	\$35.00	\$35.00
Sputter Coating	\$11.00	\$18.00
Vacuum evaporator	\$16.00	\$20.00
High Pressure Freezer	\$131.00	\$140.00
Freeze Substitution	\$65.00	\$70.00
Microwave processing	\$70.00	\$10.00
Microtome	\$10.00	\$10.00
Staff Labor	\$59.00	\$75.00

New EML Website

em-lab.berkeley.edu



Thanks to the great work of Guangwei Min, PhD, our website was updated at the beginning of this year with focus on great experience for EML users. The website is designed for easy navigation on both computers and mobile devices. The color scheme and menu system are changed to match that of the main UC Berkeley website.

On the contents side, we redesigned most of the pages especially the home page, service pages and equipment pages. With more interactive pages, users now have more ways to contact us and find answers to their questions easier.

Be sure to check out our updated [MCB 481 B/C course descriptions!](#)

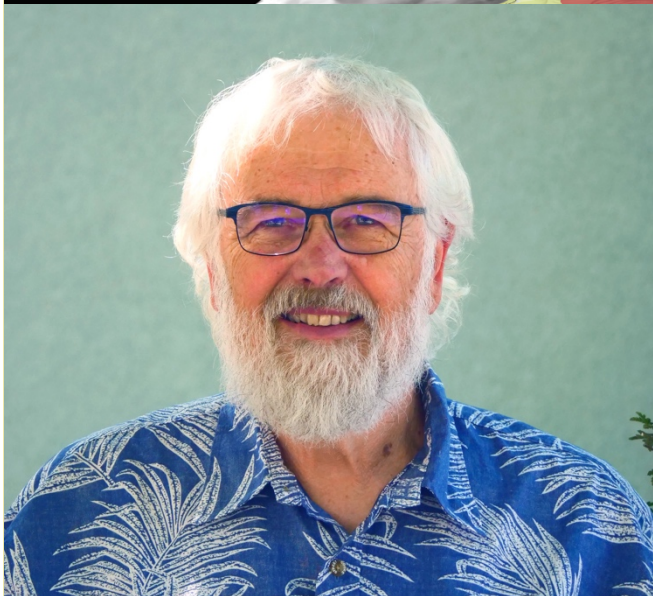
BERKELEY EML

Microscope Laboratory (EML) is an imaging core and shared resource facility of California at Berkeley. Our mission is to provide high-quality electron microscopy, education, and training for the UC Berkeley campus, other academic and private companies at-large.

Equipped with high resolution transmission electron microscopes, scanning electron microscopes, high pressure freezer and full suite of ancillary sample preparation most EM-related needs. The equipment can provide nanometer scale structural, chemical and materials science.

EML@UCB News

Mar. 27, 2018 See the world from down under! The IMC19 is being held in Sydney, AUS held September 9-14th. imc19.com
Our Director (Danielle) along with Dr. Paul Verkade (U of Bristol) are co-chairing the life sciences "Pathology and Immunocytochemistry & Biomolecular Labeling" Symposium. Plan to scope out



Farewells (kind of!)

Of course, this first newsletter would not be complete without paying an homage to the esteemed Dr. Kent McDonald. As many of you know, Kent served as EML Director from 1993-2017 and during that time published with a vast array of researchers at UC Berkeley, all while still finding time to publish his original research on the mitotic apparatus as well as novel EM methods. The EML owes a great debt to Kent and his high level of academic leadership of the facility.

We aim to continue the legacy of world class and innovative electron microscopy that Kent has built at the EML. You may still see Kent around the EML from time to time. While he has officially retired, we're thrilled to have him and his wealth of knowledge still around the EML, as he does science for fun with Dr. Nicole King's lab. When he's not here, of course, he's busy traveling the globe and enjoying his new/old hobby of bird photography. See one of his beautiful shots to the left!



We aim to continue the legacy of world class and innovative electron microscopy that Kent built at the EML

The EML Gets Social

In addition to our new website, we're getting into the social media game. Check us out and follow us on LinkedIn and Twitter!

[LinkedIn: ucb-eml](#)

[Twitter: @ucb_eml](#)

Upcoming EM Meetings

[Microscopy and Microanalysis](#)

Meeting: August 5-9, 2018

Baltimore, MD, USA

Register by June 25th for early rate

[International Microscopy Congress \(IMC19\)](#)

IMC has incredible [workshops!](#)

Meeting Dates: September 8-14, 2018

Sydney, AUS

Register by September 1st