## What's New with BB (April 1st, 2023 – June 30th, 2023)

Dear BB Community,

I hope you are having a great summer, enjoying the sunny evenings, the famous Oregon berries, the sand dunes on the coast and the uninterrupted long days of good science. Summer is my favorite season. I love the long days and the warm evenings and the fresh produce. This BB News issue is getting to you late, but I am making up for it by filling it with our amazing accomplishments. We have done so much this past spring!

In April, we organized a BB-specific Dam Proud Day, which raised more than \$5000 in donations for our undergraduate students to go to conferences. We also hosted a career-highlights talk by **Joe Beckman** to celebrate his successful career at OSU. In May we hosted a symposium to honor the memory of **Ken van Holde**, one of the most distinguished physical biochemists of the past 50 years. In June we celebrated the retirement of **Tory Hagen** with a breakfast and a warm send-off video prepared by students that is a testament of his dedication to teaching and mentoring. We also celebrated a pregraduation ceremony with a record number of over 300 graduating seniors and their families. We had an exceptional send-off for **Andy Karplus** with a science symposium given by former students who came from as far as Belgium.

We have so much to look forward to this summer. The GCE4All Center will be hosting a workshop to teach the GCE technology for researchers from all over the world. Joe Beckman and eMSion will be hosting a conference that is bringing speakers also from all over the world. The BPS Chapter has reserved a booth at the Oregon State Fair in Salem to conduct hands-on biochemistry experiments promoting science, and BB and COS and will be needing volunteers! At the end of summer, on September 18, we will acknowledge Chris Mathews immense post-retirement contribution to BB with a special celebration of Chris and Kate Mathews as Champions of Biochemistry.

With the retirement of three beloved faculty, Joe Beckman, Tory Hagen and Andy Karplus, our department is changing rapidly. We have welcomed in a new generation of faculty last year who hit the ground running, Alysia Vrailas-Mortimer has already received major funding from NSF, and with Nathan Mortimer, is building our first fly facility. Nathan is rapidly expanding his lab with three current students. Juan Vanegas is heavily involved with the Collaborative Innovation Complex and is at the cusp of benefiting from the explosion of interest in AI. Jessica Siegel taught her first class in neuropharmacology of drugs of abuse that was exceptionally well received.

I am incredibly fortunate to preside over this change and growth of our department, including the successful recruitment of **Sarah Clark**, who will join our faculty in September 2023 as our newest assistant professor. She will build a research program focused on mechanosensitive ion channels and their role in physiological processes such as hearing, blood pressure regulation, and pain sensation. And not least, I have finally received approval to begin advertising for a new assistant professor with research focus in neurodegenerative and infectious diseases. We will also be searching for a 12-month appointment instructor.

Lastly, I want to thank the graduating class of 2023 for taking the time to write beautiful thank you notes to every faculty member. We are proud of raising not only good scientists but also grateful conscientious citizens. As I said in my graduation speech, when you go off to the world, and wherever you go, we need you to be out there advocating for the importance of basic science for a healthy planet and a healthy and better society, and for more respect of science and education. We are so proud of all of you and will be cheering you on to the next phase, remember to always seize the next opportunity, and take risks in trying something new.

Below I list some of our successes and upcoming activities compiled by Kimberly. Hold on tight for the summer news in the next issue and join us in our Tuesday department lunches to prepare for our **retreat on the coast**.

#### **Funded Grants:**

**Ryan Mehl's** grant "The GCE4All Center: Unleashing the Potential of Genetic Code Expansion for Biomedical Research" was awarded funding by the NIH for \$249,955

**David Hendrix's** application "Artificial intelligence and art integration for the prediction and visualization of RNA 3D structures" was selected as an awardee for 2023 Research Advancement Seed Funds and was awarded \$50,000 as part of his Valley Biohealth Fellowship.

**Alysia Vrailas-Mortimer's** NSF, RCN-UBE (Research Coordinated Network-Undergraduate Biology Education) grant titled "Connecting Curriculum: A Fly-CURE Network" was funded in the amount of \$500,000.

**Elisar Barbar** Multiscale characterization of a unique class of duplex, multivalent IDP systems-Administrative Supplement to Support Undergraduate Summer Research Experiences was funded for \$12,000.

**Afua Nyarko** submitted and received an award of \$52,436 from the Research Equipment Reserve Fund for her proposal on Acquisition of a Bio-Rad NGC Quest 10 Plus Protein Purification System.

#### **Grant Proposals Submitted:**

**Alysia Vrailas-Mortimer** submitted a proposal titled "Summer Healthy Aging Research Experience (SHARE) for Advancing Diversity in Aging Research"

**Douglas Walker** submitted to NIH an F32 proposal titles LC8 Binding Multivalent Proteins.

#### **Publications:**

From the *Barbar* Group:

Estelle AB, George A, **Barbar EJ**, Zuckerman DM. <u>Quantifying cooperative multisite binding in the hub protein LC8 through Bayesian inference</u>. PLoS Comput Biol. 2023 Apr 1;19(4):e1011059. doi: 10.1371/journal.pcbi.1011059. eCollection 2023 Apr.

From the *Hagen* Group:

Michels AJ, Butler JA, Uesugi SL, Lee K, Frei BB, Bobe G, Magnusson KR, **Hagen TM.** "Multivitamin/Multimineral Supplementation Prevents or Reverses Decline in Vitamin Biomarkers and Cellular Energy Metabolism in Healthy Older Men: A Randomized, Double-Blind, Placebo-Controlled Study" PMID: 37375594 MCID: PMC10301451 DOI: 10.3390/nu15122691

From the *Hendrix* Group:

Valencia JD, **Hendrix DA**. <u>Improving deep models of protein-coding potential with a Fourier-transform architecture and machine translation task.</u>

bioRxiv. 2023 Apr 19:2023.04.03.535488. doi: 10.1101/2023.04.03.535488.

Preprint.PMID: 37066250 Free PMC article

Lasher B, **Hendrix DA.** <u>bpRNA-align: improved RNA secondary structure global alignment for comparing and clustering RNA structures.</u> RNA. 2023 May;29(5):584-595. doi: 10.1261/rna.079211.122. Epub 2023 Feb 9.PMID: 36759128

From the *Mehl* Group:

Taylor CJ, Hardy FJ, Burke AJ, Bednar RM, **Mehl RA**, Green AP, Lovelock SL. <u>Protein Engineering mutually orthogonal PylRS/tRNA pairs for dual encoding of functional histidine analogues</u>. Sci. 2023 May;32(5):e4640. doi: 10.1002/pro.4640.PMID: 37051694 Free PMC article.

Taylor CJ, Hardy FJ, Burke AJ, Bednar RM, **Mehl RA**, Green AP, Lovelock SL. Engineering mutually orthogonal PylRS/tRNA pairs for dual encoding of functional histidine analogues. Protein Sci. 2023 May;32(5):e4640. doi: 10.1002/pro.4640.PMID: 37051694 Free PMC article.

Jana S, Evans EGB, Jang HS, Zhang S, Zhang H, Rajca A, Gordon SE, Zagotta WN, Stoll S, **Mehl RA.** <u>Ultrafast Bioorthogonal Spin-Labeling and Distance Measurements in Mammalian Cells Using Small, Genetically Encoded Tetrazine Amino Acids.</u> J Am Chem Soc. 2023 Jun 26. doi: 10.1021/jacs.3c00967. Online ahead of print.PMID: 37364003

From the *Reardon/Beckman/Karplus/Mehl/Cooley* Groups:

Zhu P, Stanisheuski S, Franklin R, Vogel A, Vesely CH, Reardon P, Sluchanko NN, **Beckman JS**, **Karplus PA**, **Mehl RA**, **Cooley RB**. <u>Autonomous Synthesis of Functional, Permanently Phosphorylated Proteins for Defining the Interactome of Monomeric 14-3-3ζ</u>. .ACS Cent Sci. 2023 Apr 10;9(4):816-835. doi: 10.1021/acscentsci.3c00191. eCollection 2023 Apr 26.PMID: 37122473 Free PMC article.

From the *Karplus/Mehl* Group:

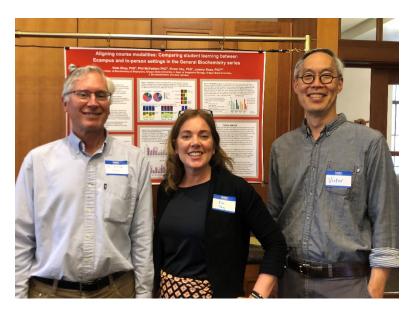
Bednar RM, **Karplus PA**, **Mehl RA**. <u>Site-specific dual encoding and labeling of proteins via genetic code expansion.</u> Cell Chem Biol. 2023 Apr 20;30(4):343-361. doi: 10.1016/j.chembiol.2023.03.004. Epub 2023 Mar 27.PMID: 36977415 Review.

#### **Outreach News:**

**Ryan Mehl** gave a talk, "Reprogramming the building blocks of life", to the Academy for Lifelong Learning on April 13<sup>th</sup> via Zoom.

#### **Poster Presentations:**

**Kate Shay**, **Victor Hsu**, and **Phil McFadden** presented a poster at the College of Science Educational Research Showcase, titled "Aligning course modalities: Comparing student learning between Ecampus and in-person settings in the General Biochemistry series".



#### **Research in the News:**

Alysia Vrailas-Mortimer was featured on the front page of LPI's Research Newsletter, in an article that discussed her work in finding new treatment options for neurodegenerative diseases using fruit flies. The link to the article is here: |pi spring 2023 nl final.pdf (oregonstate.edu) Alysia also presented a talk as part of LPI's Webinar Series, titled <u>Come Fly with Me: New Tools to Investigate Parkinson's</u>, on Wednesday, July 11<sup>th</sup>, at 11:00am PST.

#### **Grad Specific News:**

**Nick Bretz** presented a poster entitled "Not quite FedEx: How are venom proteins packaged for delivery by the parasitoid wasp *Ganaspis hookeri*" at the Genetics Society of America's Annual Drosophila Research Conference in Chicago and at the American Society for Biochemistry and Molecular Biology's Discover BMB Meeting in Seattle.

Cat Vesely was awarded a Protein Society Young Investigator Travel Award.

Spring Rotation Talks presented by the first-year grad student cohort:

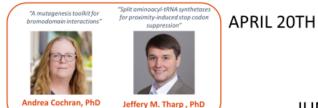
- **Nick Bretz:** "Not quite Fed Ex: How are venom proteins packaged for delivery by the parasitoid wasp Ganaspis hookeri?"
- Michael Youkhateh: "Venoms and their Toll (like receptor)"

- **Kristen Snitchler:** "Surprise! Amino-acyl tRNA synthetase activity is regulated by DMF"
- **Sarah Louie:** "Terminating early termination: moving toward a more versatile system for encoding non-hydrolyzable phosphoserine"
- Mukhtar Idris: "Solution Properties and Interactions of WW and C2 Domain Containing Protein 3 (WWC3)"
- Mahya Payazdan: "Identifying the molecular mechanism(s) by which toll-like receptor signaling represses vitamin D-induced cathelicidin gene expression"
- Patrick Allen: "Lamin, a Link Between Aggregation and Aging"

The winner of the Chris and Kate Mathews fellowship is **Sarah Louie**, Congrats Sarah!

#### **GCE News:**

## INTERNATIONAL GCE WEBINAR: SPRING 2023 SPEAKERS



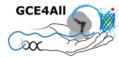
MAY 18TH







Supported by:
OSU College of Science,
OSU Dept Biochemistry & Biophysics
NIH GCE4All Research Center



JUNE 15TH

If you missed any of these webinars, please visit our <u>YouTube channel</u> to watch recordings of the webinar talks! The series is now currently on break – but will start again starting in October for new speakers!

#### Addgene Blog Post:

GCE4All: Making Genetic Code Expansion Accessible

By Rachel Leeson

https://blog.addgene.org/gce4all-making-genetic-code-expansion-accessible?utm\_content=252882042&utm\_medium=social&utm\_source=twitter&hss\_channel=tw-82411462

**GCE Workshops** are back in-person! We'll be hosting an in-person, 5-day intensive lecture and laboratory course titled "*Bioorthogonal Ligations – Clicking with GCE*" on August 8-12<sup>th</sup>. Please see the flyer below and visit our website for more information!



Moriah Mathis and Patrick Allen were both awarded GCE Fellowships.



#### **Undergrads in the News:**

BMB Senior **Ebunoluwa Morakinyo** was featured in an article in IMPACT. See article on the BB Website here: <a href="https://biochem.oregonstate.edu/impact/2023/06/biochemistry-and-molecular-biology-senior-thrives-from-the-stage-to-the-lab">https://biochem.oregonstate.edu/impact/2023/06/biochemistry-and-molecular-biology-senior-thrives-from-the-stage-to-the-lab</a>

Undergraduate student **Samuel Basset** was nominated by the BB Department, and won a WIC Culture of Writing Award.

SURE & CURE Recipients: This year's SURE recipients are Kendra Anderson (Freitag Lab), Yaya Kiss (Johnson Lab), Misgana Merid (Hokanson Lab), Kendall Evanchak (N. Mortimer Lab), Francisco Hernandez (A. Mortimer Lab), Alyssa Garcia (Barbar Lab), and Hung Nguyen (Mehl Lab). The CURE recipients are Autumn Ditzel (Freitag Lab), Sydney Blurton (Hokanson Lab), Kai Zwinik (Vanegas Lab), Mark McLaughlin (Barbar Lab), Carmen Brown (A. Mortimer Lab), and Donovan McAfee (Mehl Lab). Congratulations to all!

Chaz Kayser (A. Mortimer Lab) was awarded a 2023 LIFE Scholars Fellowship.

AJ Damiana (A. Mortimer Lab) was awarded a 2023 Interdisciplinary Student Fellowship.

#### **Alumni News:**



**Daniel Howell** was awarded a Fulbright US Student Award to conduct research similar to what was suggested in his BB 494 proposal at the Max Planck Institute in Marburg, Germany.

#### **BPS Student Chapter News:**

Students organized graduate student and post-doc presentations and flash-talks as part of the Ken van Holde Symposium.

We have assembled a DIY science experiment packet that is aimed at middle/high school aged kids, their parents, and their teachers to do at home. The packets consist of about a dozen experiments all with easy to access ingredients, engaging descriptions and questions, and fun lessons to be learned through experimentation. We are planning to host this list on the department website and disseminate a QRcode for people to access the packet.

BPS will be manning a booth at the Oregon State Fair for 6 of the 11 days that the Fair will be running: Sat, Aug 26; Sun, Aug 27; Thur, Aug 31; Sat, Sept 2; Sun, Sept 3; and Mon, Sept 4. We will be showcasing a selection of experiments from our DIY packets with an emphasis on high energy and/or hands-on experiments. We're excited to interface with the public, communicate with a general audience, and share our fascination with science.

#### **Other News:**

**Kari van Zee** was selected as the 2023 recipient of the Dar Reese Excellence in Advising Award by the Faculty Recognition and Awards Committee and will be honored during an invitation-only event on September 18<sup>th</sup>. Congratulations, Kari!

Joe Beckman, Rachel Franklin, Valery Voinov, Yury Vasil'ev and Doug Barofsky are excited to invite you to the 16th Uppsala Conference on Electron Capture (ECD) and Transfer Dissociation (ETD) and related dissociation methods (UPPCON 2023). The conference will take place from August 20th to August 23rd, 2023, in Corvallis, Oregon, USA. This year's conference offers an exciting opportunity to discuss the latest developments in radical ion chemistry, methodology, and instrumentation, and to explore the challenges for biomolecule characterization. The conference is hosted by Oregon State University and by e-MSion (now part of Agilent). During the conference, you will have the chance to attend a variety of scientific presentations, including talks and a poster session. In addition, we have planned social activities each evening to visit the area and make new connections. The conference website is now open for registration and abstract submission, and we plan to select many of the submitted abstracts for talks. Register now at <a href="https://blogs.oregonstate.edu/uppcon/">https://blogs.oregonstate.edu/uppcon/</a>

**Sarah Clark** will join our faculty in Sep 2023 as our newest assistant professor. She will build a research program focused on mechanosensitive ion channels and their role in physiological processes such as hearing, blood pressure regulation, and pain sensation. Sarah will combine a structural, functional, and single molecule studies of the native *C. elegans* MEC complex to elucidate the mechanism of mechanotransduction. In her post-doctoral research, she determined the structure of the native, mechanosensitive TMC-1 complex from *C. elegans*, illuminating the mechanism by which vertebrates hear. The methods and skills developed as a result of this work will be adopted to the study of the *C. elegans* MEC complex, a similarly scarce, multi-subunit complex that is critical for the sensation of touch. Sarah will use cryo-electron microscopy to determine structures of these large protein complexes isolated in their native form from *C. elegans*. We are very excited that Sarah will bring both this powerful structural technique to OSU and also *C. elegans* as a model organism. Her expertise will enhance the science of many faculty on campus. We are looking forward to her teaching and training students in addition to doing cutting edge research.

Special thanks to the search committee headed by Michael Freitag, and members: Alysia Mortimer, Lauren Dalton, Juan Vanegas, Tilo Chatterjee, David Hendrix, Dee Denver (search advocate)

BB received approval from the College of Science to hire two more faculty for 2024!

Time Change: BB's Seminar Series will be held on Wednesdays throughout the 2023-2024 academic year, in ALS 4001 from **4pm-5pm**. A reception will be held prior to all talks, beginning at 3:30pm, in the BB Library, ALS 2009A.

#### **Spring Term Events:**

BB Seminar Series Speaker: Dr. Jonathan Pruneda 4/5 Joe Beckman Retirement and Talk 4/19

Dam Proud Day 4/26

BB Seminar Series Speaker: Dr. Daniel Liefwalker 5/3 BB Seminar Series Speaker: Dr. Philippe Georgel 5/12

Ken van Holde Symposium 5/13-5/14

BB Seminar Series Speaker: Dr. Jan Dahl 5/17

BB Seminar Series Speaker: Dr. Derek Applewhite 5/31

Tory Hagen Retirement 6/9

First Year Grad Student Rotation Talks 6/16

BB Grad Dessert 6/16 Commencement 6/17

Andy Karplus Retirement Symposium and End of the Year Celebration 6/21

#### Dam Proud Day: April 26th

Thanks to the efforts of Kari, Lauren, Kate, and our Biochemistry Club members who artistically created stories ready-to-post to the party set-up, BB raised \$5,250 from 33 gifts via the website (counting the challenges). The event hosted by zoom 4 successful alumni at different stages in their career who credit their time in BB and undergraduate research in particular as the major launch of their scientific career. **Peter Hsu**- biotech/industry career alum (BB Class of 2007; PhD at UW in Chemistry 2013, currently Principal Scientist/group leader at Genentech) **Jenna Beyer** - young alumna nearing finish line of PhD graduate program (BB Class of 2019 and now 4th year Biochemistry/Biophysics PhD Candidate at UPenn) **Omar Rachdi** and **Taylor Bundy**—our physicians (BB Class of 2014 and Taylor Bundy BB Class of 2015, College of Osteopathic Medicine of the Pacific, Class of 2021, now DO at University of Utah). Our goal is to continue to create an environment so that every BB student can have a similar story.

## Dam Proud Day 2023



OSU President Dr. Jayathi Murphy and BMB Alum Nya Bucker (Class of 2022)



BB Advising Team: Kari van Zee, Lauren Dalton & Kate Shay

## **Spring Term Celebrations:**

**Joe Beckman** gave a talk titled "50 Years of Radical Thinking in Biology: And Some Radical Thinking About BB Going Forward" to celebrate his retirement from the BB Department. The link to the talk can be found here: <a href="https://media.oregonstate.edu/media/t/1\_ka80nic5">https://media.oregonstate.edu/media/t/1\_ka80nic5</a> Following Joe's talk was a retirement celebration in the BB Library.



#### Tory Hagen Retirement Celebration:



Link to guest talks at Tory's celebration:

https://oregonstate.box.com/s/6obfuyxlch3sexh8bbr31479toouts53

## Kensal van Holde Symposium and Celebration













Ken joined the brand-new Department of Biochemistry and Biophysics, bringing expertise with ultracentrifugation, CD, and other biophysical techniques. In fact, his centrifuge is still in use by us today. Together with Irv Isenberg and Ken's student Randy Rill, Ken determined that what we now call "core histones" occur in equimolar quantities. Additional studies showed that the prevalent model of "chromatin" at the time, namely histones coating DNA on the outside of the dsDNA, must be incorrect. Though Ken's team did not solve the structure of the nucleosome, they were part of the effort that determined that DNA is wrapped around the nucleosomes core particles like "beads on a string", a major discovery in biochemistry and biophysics. For his efforts, Ken was elected to the National Academy of Sciences.



Saturday, May 13 9 am Mixer 10:00 am – noon Symposium 1 Lunch 1:00 pm – 5:00 pm Symposium 2 6:00 pm Dinner



#### Kensal van <u>Holde</u> Symposium and Celebration

May 13-14, 2023

Linus Pauling Science Center Oregon State University

A celebration of the scientific life of Kensal E. van Holde May 14, 1928 – November 9, 2019

Ken van Holde was one of the preeminent physical biochemists of the late 20th century, and one of the most influential early faculty members of the Department of Biochemistry. He was an expert on ultracentrifugation, circular dichroism, and one of the first persons to correctly describe the structure of the nucleosome. He was recognized as one of the very first OSU Distinguished Professors and elected a member of the National Academy of Sciences. He is sorely missed. At this symposium, his former mentees and current students will speak.

# Sunday, May 14 9 am Mixer 9:30 am – noon Reminiscences of trainees and colleagues

While being an excellent experimentalist, Ken was

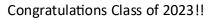
also a dedicated educator and beloved mentor. He authored the definitive work on the early work on DNA-proteins complexes, called simply "Chromatin", and a monograph on "Oxygen and the Evolution of Life". Together with P. Shing Ho, a former BB Chair, and Curtis Johnson, he authored a widely used biophysics textbook, "Principles of Physical Biochemistry", and together with our longest-serving former Chair, Christopher K. Mathews, he wrote one of the most widely used "Biochemistry" textbooks.

#### BB Senior Grad Dessert:

Faculty and students came together to celebrate our graduating 2023 Class of 12 BB and 72 BMB, 26 of them are in the Honors College, 56 have participated in independent undergraduate research experiences in various departments and colleges, and all had taken 2 course-based research labs.

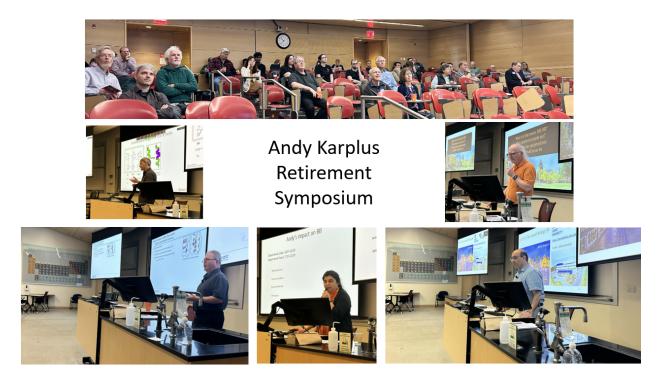


## Commencement Ceremony:





## Andy Karplus Retirement Symposium and End of Year Celebration:



The recording of the symposium is available here: <a href="https://oregonstate.box.com/s/3oglqmj99rn4klr6km6v9f0j7embz1kh">https://oregonstate.box.com/s/3oglqmj99rn4klr6km6v9f0j7embz1kh</a>

Post-Symposium Celebration and End of Year Party:



Due to popular demand I am including the poem that Andy wrote many years ago (top part) that I read at Andy's retirement celebration. It is a fun description of the stages of a career in science. I asked Kevin Ahern, our accomplished poet, to finish this poem and to include other stages in a career in science (bottom part) and he beautifully did as below:

## The Grass is Always Greener (to the tune of Jingle Bells)

When I was just a grad, and I did all the work
I often got quite mad, and dreamed of all the perks
That I would one day have, when all my dues were paid
And I became a pro-fess-or, cuz then I'd have it made.

Oh, pro-fess-ors, pro-fess-ors, they don't do the work.

They give talks and wine and dine while leaving me all irked
Oh, pro-fess-ors, pro-fess-ors, they get all the fame.

What I'd give to have that job it would be like a game.

Then came my post-doc years; they started out quite grim.

I felt all on my own ... mine to sink or swim.

But as I got ideas, too many to fulfill.

I wished that I could get a bunch of grads to do my will

Oh, professorship, professorship, boy I just can't wait Telling all those in my lab to work and make me great! Oh, professorship, professorship, when I get that post. That will really be the time that I'll enjoy the most.

Finally, I'm a Prof, and though I'm still quite young.

I know I've got the stuff, to become a big, big gun.

I started writing grants, but much to my dismay,

Reviews that sounded really great weren't good enough to pay.

Oh, professorship, professorship, it's not all fun and games For those grad and post-doc days I sometimes think I'd change!

Oh, professorship, professorship, I wish I had more time. To do my own experiments, yes that would be sublime.

Now it's three a.m., and what am I to do?
A lecture set for nine o'clock; my family needs me too!
Plus my grant is due; it's got to be the best.
A student's thesis to review oh my I need some rest!

Oh, professorship, professorship, it's not all fun and games For those grad and post-doc days I sometimes think I'd change!

Oh, professorship, professorship, it's not always ideal. But despite the ups and downs, it does have its appeal.

And then they made me Head, connecting all the dots
Advancing us ahead, calling all the shots
But I found out instead, no thanks when we get fame
And when it comes to problems, it's the Head who gets the blame

Oh leadership, leadership, not all fun and games Things will often go awry, despite most noble aims Oh, leadership, leadership, such a point of view! Although it wasn't simple, I am glad I made it through



Now I have reached the point, my career close to its end Along the way I've made, many, many friends Students and the faculty, administrators too It is time for me right here to say, a big thank you to you

Oh, thank you all big and small, for coming out today
Celebrating everything, that happened on the way
Oh, student days, professor ways, and a Head upstanding tall
Please know how much I have loved working with you all

#### **Upcoming Events:**

Every Tuesday during the summer: Tuesday BYO Lunch Department Events

August 8-12: GCE4All Workshop August 20-23: UPPCON 2023

August 26-31 and September 2-4: BPS Student Chapter Booth at the Oregon State Fair

September 18: Chris & Kate Mathews "Champions of Biochemistry" Symposium

September 19: University Day

September 21-23: BB Retreat—Hatfield Center, Newport, followed by gathering and spending

the night in Seal Rock

December 13: NMR Symposium

Thank you for reading, and for contributing to the news in this issue. Have a great rest of the Summer and join us for Tuesday lunches when you can. If you see missing news please let Kimberly know so we include it in the next issue.

Elisar