DBIO Executive Committee Meeting March 6, 2020

Virtual meeting due to the cancellation of the 2020 March Meeting in Denver.

Requested attendance:

Chair: Massimo Vergassola (04/19 - 03/20), University of California, San Diego

Chair-Elect: Phil Nelson (04/19 - 03/20), University of Pennsylvania

Vice Chair: Margaret Gardel (04/19 - 03/20), University of Chicago

Vice Chair: Margaret Cheung (04/20 - 03/21), University of Houston

Past Chair: Jennifer Ross (04/19 - 03/20), University of Syracuse

Councilor: William Bialek (01/17 - 12/20), Princeton University

Secretary/Treasurer: Vernita Gordon (04/16 - 03/20), University of Texas at Austin

Secretary/Treasurer: Huan-Xiang Zhou (04/20 - 03/24), University of Illinois at Chicago

Member-at-Large: Meredith Betterton (04/19 - 03/22), University of Colorado, Boulder

Member-at-Large: Eva-Maria S Collins (04/17 - 03/20), Swarthmore College

Member-at-Large: Moumita Das (04/19 - 03/22), Rochester Institute of Technology

Member-at-Large: Alexandre V Morozov (04/17 - 03/20), Rutgers University, New

Brunswick

Member-at-Large: MingMing Wu (04/18 - 03/21), Cornell University

Member-at-Large: Sri Iyer-Biswas (04/20 - 03/23), Purdue University

Member-at-Large: Taviare Hawkins (04/20-03/21), University of Wisconsin La Crosse

Member-at-Large: Orit Peleg (04/20 - 03/23), University of Colorado, Boulder

- 3. Committee Reports, 2020 Assignments, and Descriptions
 - a. Program Committee: Phil Nelson

- b. Fellows Committee: Margaret Gardel
- c. Thesis Prize Committee: Jennifer Ross
- d. Delbruck Prize Committee: Report by Chao Tang
- e. Student Travel Awards Committee: Massimo Vergassola
- f. Membership Committee: Margaret Gardel
- g. Fundraising Committee: William Bialek
- 5. Councilor Report: William Bialek
- 6. Decadal NAS Survey: William Bialek
- 7. Discussion on applications for Invited Sessions by ExComm members
- 8. Appendix

Sample letter for the program committee

Outgoing/New members of the Exec Committee

Welcome to the new members of the Exec Committee!

Margaret Cheung, Vice Chair;

Huan-Xiang Zhou, Secretary/Treasurer;

Sri Iyer-Biswas, Member-at-Large;

Taviare Hawkins, Member-at-Large;

Orit Peleg, Member-at-Large.

A great thank you to the outgoing members!

Jennifer Ross, Past Chair;

Vernita Gordon, Secretary/Treasurer;

Eva-Maria S. Collins, Member-at-Large;

Alexandre V. Morozov, Member-at-Large.

2019 Meeting Minutes

Minutes from last year's meeting approved.

Program committee

Report 2019-2020: Phil Nelson, Chair

First, great thanks are due to the program committee and other volunteers, for expert and punctual sorting of hundreds of abstracts. Greater thanks still are due to Pupa Gilbert for stepping up at short notice, traveling to the in-person sorting meeting, and then finding brilliant solutions to many logistic issues. She is mostly responsible for our rational geographic arrangement of session rooms.

DBIO was allotted 8 invited symposia. Nevertheless, thanks to enthusiastic members we were able to have **105 invited speakers** (not 40=5x8) via our many Focus sessions. Many thanks to session organizers for proposing all those Focus sessions and for pulling in all the contributed talks needed to justify them. The program committee also did some inspired work sorting many contributed talks into relevant Focus sessions to justify cloning those sessions—thanks.

Also, because of co-sponsorship we had a total of 9 invited symposia (two counting as half each). That includes one slot for the Delbruck symposium. The program committee decided to have an Education session this year; it was cosponsored with FEd, which seems like a good thing to repeat in future.

At least **42 of those 105 invited speakers were female.** Female members were also strongly represented among successful session proposers, and among session chairs. I could not count the URMs, but they were not negligible.

All told we got about **653 abstracts** this year. That's down slightly from last year, but actually the total attendance for the entire meeting is also down, perhaps because Denver is not quite as easy to go to as is Boston. At least this year we did not conflict with Biophysical Society as some years.

I have written up many practical lessons learned into the Manual to be passed to next year's program chair, which can be found below and in the Appendix.

We gave out about 7 little bourses of \$1K each to partially offset registration and expenses of invited speakers who were preferentially (a) "Biologists"; and (b) Not APS members. Do we still approve of this informal policy?

We must remain vigilant about future APS attempts to limit the number of contributed talks. This year they backed down after attempting to do it at the last moment.

Program Committee members:

2020 committee:

Margaret Gardel (also served 2019; Chair, Program Cmte chair for DBIO 2021) Margaret Cheung (will be 2022 cmte Chair) Phil Nelson (also served 2018, 2019) Taviare Hawkins Mingming Wu Sri Iyer-Biswas Orit Peleg Moumita Das (also served 2019) Meredith Betterton (also served 2018, 2019) Eva-Maria S Collins (also served 2018, 2019)

2019 committee also included:

Vernita Gordon (DBIO Sec/Tres) Jeff Gore Alexandre Morozov Yuhai Tu (past Program Chair, 2017)

2018 committee also included:

Massimo Vergassola (Chair, March Meeting chair for DBIO 2019) Vernita Gordon (DBIO Sec/Tres) Jeff Gore Ilya Nemenman (past Program Chair, 2016) Joshua Shaevitz

What does this committee do?

This is the committee that organizes the DBIO sessions at March Meeting.

This includes soliciting the DBIO membership for ideas for invited and focus sessions, selecting the invited sessions, sorting the abstracts, and checking the program to make sure it is correct. Below, is the information as listed in our current Operating Procedures and Bylaws for DBIO. It is one of the most important and most involved committees in DBIO. Additional information and operating procedures can be found on APS Engage.

Fellowship Committee Report 2019-2020: Margaret Gardel, Chair

2019 Fellows:

Deserno, Markus

Carnegie Mellon University

Citation: For pioneering contributions to the theory and simulation of biological membranes and proteins, and their interactions, leading to improved understanding of cellular mechanics and self-organization.

Hagen, Stephen J

University of Florida

Citation: For significant experimental work on and elucidation of protein folding and bacterial

gene regulation, and for exceptional service to and on behalf of the Division of Biological Physics and the American Physical Society.

Saleh, Omar A.

University of California, Santa Barbara

Citation: For outstanding contributions to single-molecule biophysics, including development of magnetic tweezer instrumentation and its use in elucidating electrostatic and self-avoidance contributions to biopolymer structure, as well as mechanisms of motion of ring-shaped ATPases along DNA.

Shaevitz, Joshua W

Princeton University

Citation: For fundamental contributions to the understanding of the mechanics and dynamics of biological systems, from single molecules to cell collectives to behaving animals, through the development of new techniques for precision measurement.

Valentine, Megan T.

University of California, Santa Barbara

Citation: For pioneering research in the development of microrheology and the applications of biomechanics at multiple length scales to diverse biological systems.

Wilke, Claus

University of Texas at Austin

Citation: For discovering that biophysical constraints are a primary driver of protein sequence evolution.

Zou, Xiaoqin

University of Missouri

Citation: For outstanding contributions to developing novel physics-based algorithms for modeling protein interactions with applications to structure-based drug design.

Members of the Committee:

2020 committee:

Margaret Cheung (chair)

Taviare Hawkins

Bill Bialek (also served 2018)

Sri Iyer-Biswas

Margaret Gardel (also served as Chair 2019)

2019 committee also included:

Phil Nelson

Mingming Wu (also in 2018)

Kandice Tanner

Jie Yan

Aihua Xie

2018 committee also included:

Phil Nelson (chair) Yuhai Tu Ilya Nemenman Jeff Gore Bill Bialek Mingming Wu

What does this committee do?

Fellowship committee is responsible for evaluating and selecting the APS Fellows that DBIO will sponsor for the next year. APS general will solicit the fellowships, although the committee is encouraged to identify good candidates to encourage them to get packets assembled and submitted by others. The committee's recommendations are sent to APS who will send them to APS Council for approval. See Operating Procedures in APS Engage.

Dissertation Prize Committee Report 2019-2020: Jennifer Ross, Chair

Winner: Tapomoy Bhattacharjee, Princeton University, Andlinger Center for Energy and the Environment, Princeton, NJ 08544

Citation: "For pioneering new ways to bioprint, culture, and study cells in three dimensions and outstanding work investigating jammed micro gels as a biomaterials."

Thesis Award Committee:

2020 committee:

Massimo Vergassola (Chair) Huan-Xiang Zhou Orit Peleg Padmini Rangamani

2019 committee:

Jenny Ross (Chair) Eva-Maria Schoetz Collins (3) Erin Rericha (2) Meredith Betterton (1)

2018 committee:

Yuhai Tu (Chair) Eva-Maria Schoetz Collins (2) Kandice Tanner (3) Erin Rericha (1)

See Operating Procedures in APS Engage.

Delbruck Prize Committee Report 2019-2020: Chao Tang, Chair

The Delbruck prize committee consisted of Reka Albert, Zuzanna Siwy, Jose Onuchic, Ken Dill and Chao Tang (chair). The committee reviewed 10 qualified candidates with diverse research fields. There were 2 women candidates, 2 candidates from Europe and one from Israel. Among them, 4 were carried over from the previous years and 6 were first-time candidates. The committee had a video conference on July 24, 2019 and email discussions before and after. The criterion used to select the prize winner was the best science and large impact. There were a couple of situations of conflict of interest (committee members being collaborators of candidates), which were taken care of. There were more than one very strong candidates and in the end the committee selected Jim Collins by majority vote. The citation reads: "For pioneering contributions at the interface of physics and biology, in particular the establishment of the field of synthetic biology and applications of statistical physics and nonlinear dynamics in biology and medicine."

2020 prize committee:

Tatyana Sharpee (Chair) Suzanne Kane Raghuveer Parthasarathy Ibrahim Cissé; Chao Tang (past cmte Chair) James Collins (most recent awardee)

2019 committee:

Chao Tang (Chair) Ken Dill (2019 Delbruck Winner) (vice chair) Jose Onuchic (2019 Delbruck Winner) Zuzanna S. Siwy Reka Albert

2018 committee:

Margaret Gardel (Chair) Daniel Fisher Bill Bialek (2018 Delbruck Winner) Wilma Olson Chao Tang For operating procedures see APS Engage.

Travel Award Committee Report 2019-2020: Massimo Vergassola, Chair

We received 21 submissions for travel awards. Of the 21 submissions, 9 were women (43%). Hard to tell anything about under-representation.

Instructions and criteria that were used for scoring are indicated hereafter:

"Criteria are the scientific merit of the student and the student's career stage with preference for stages and situations where funding would not be available from other sources for the student to go to MM, and under-represented status of either the student or the advisor (gender, race/ethnicity, institution). Please try to be fair-minded and not let your impression of the science become conflated with your impression of the advisor or the institution. If you have a COI with a specific student or PI, please write COI in the column and do not grade them. I will let you decide if you have a COI."

Scored in four categories: 1. Priority, to be awarded; 2. Could be awarded; 3. Rather not; 4. Should not be awarded

Selected 17 applications, 7 were women (41%). One of the two applications rejected was by a previous awardee and the advisor of the other one had two candidates.

Due to the cancellation of the MM, we had to decide how to deal with expenses that were already incurred and could not be reimbursed. After consultation, the following email was sent to awardees by the Secretary Vernita Gordon:

Dear XXXX,

In light of the March Meeting being cancelled, I have consulted with the other members of the executive committee and this is what we are going to do:

First, please try to get refunds on as much as you can.

Second, send us the receipts for things you haven't been able to get refunded, and we will reimburse you up to the amount of the travel award.

thanks

Vernita

Some of them actually had their expenses reimbursed and will not need anything. Nelson actually reimbursed one invited speaker out of pocket as a donation to DBIO.

2020 committee:

Phil Nelson (Chair)

2019 committee:

Massimo Vergassola (Chair) Alex Morozov Mingming Wu Meredith Betterton

2018 committee:

Jenny Ross (Chair), Jeff Gore Alex Morozov Mingming Wu

For operating procedures see APS Engage.

Membership Committee Report 2019-2020: Margaret Gardel, Chair

DBIO

Year	Total Number of	Percentage of
	Members	APS Total
2014	2025	4.0%
2015	2034	3.9%
2016	2089	3.9%
2017	2025	3.7%
2018	2165	3.9%
2019	2185	4.0%

Members of the Committee

2020 committee:

Jenny Ross (Chair)

2019 committee:

Margaret Gardel (Chair) Phil Nelson, Massimo Vergassola, Jenny Ross.

2018 committee:

Phil Nelson (Chair), Yuhai Tu, Massimo Vergassola, Jenny Ross.

UNIT NAME	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
DIVISIONS	2014	2015	2016	2017	2010	2019	2014	2015	2016	2017	2010	2019
Atomic, Molecular & Optical	3.091	3.045	3,109	3,228	3.297	3.185	6.1%	5.9%	5.9%	6.0%	6.0%	5.89
,	2,681	2,899	3,034	3,088	3,049	3,007	5.3%	5.6%	5.7%	5.7%	5.5%	5.5%
Astrophysics Biological Physics	2.025	2,099	2.089	2.025	2,165	2.185	4.0%	3.9%	3.7%	3.7%	3.9%	4.09
Computational Physics	2,665	2,034	2,009	2,025	3.170	3,208	5.3%	5.2%	5.4%	5.5%	5.7%	5.89
Condensed Matter Physics	5,978	5,839	6.046	6,379	6,739	6.694	11.8%	11.3%	11.4%	11.8%	12.2%	12.19
Chemical Physics	1,711	1,682	1,678	1.683	1,625	1.599	3.4%	3.3%	3.2%	3.1%	2.9%	2.99
Fluid Dynamics	3,132	2.910	3,307	3,159	3.378	3.255	6.2%	5.6%	6.2%	5.8%	6.1%	5.99
Gravitation		1.584	1.634	1.693	1.697	1,730	2.3%	3.1%	3.1%	3.1%	3.1%	3.19
	1,146 1.451	1,584	1,634	1,693	1,697	1,730	2.3%	2.8%	2.7%	2.8%	2.8%	2.89
Polymer Physics			,	,	,	,			2.7%			
Laser Science	1,374	1,356	1,316	1,381	1,550	1,314	2.7%	2.6%		2.6%	2.8%	2.49
Materials Physics	2,977	2,934	3,077	3,203	3,318	3,264	5.9%	5.7%	5.8%	5.9%	6.0%	5.99
Nuclear Physics	2,713	2,707	2,722	2,715	2,688	2,633	5.4%	5.3%	5.1%	5.0%	4.9%	4.89
Physics of Beams	1,111	1,052	1,193	1,125	1,203	1,189	2.2%	2.0%	2.2%	2.1%	2.2%	2.29
Particles & Fields	3,537	3,447	3,548	3,588	3,513	3,491	7.0%	6.7%	6.7%	6.6%	6.3%	6.39
Plasma Physics	2,448	2,437	2,545	2,614	2,618	2,573	4.8%	4.7%	4.8%	4.8%	4.7%	4.79
Quantum Information	1,304	1,360	1,627	1,831	2,140	2,398	2.6%	2.6%	3.1%	3.4%	3.9%	4.39
TOPICAL GROUPS												
Energy Research & Applications	564	554	556	544	523	502	1.1%	1.1%	1.0%	1.0%	0.9%	0.9%
Few Body Systems	319	335	346	370	353	353	0.6%	0.7%	0.7%	0.7%	0.6%	0.69
Fundamental Constants	453	449	474	478	505	533	0.9%	0.9%	0.9%	0.9%	0.9%	1.09
Hadronic	498	482	488	476	467	445	1.0%	0.9%	0.9%	0.9%	0.8%	0.89
Instrument & Measure Science	560	541	562	564	540	510	1.1%	1.1%	1.1%	1.0%	1.0%	0.9%
Magnetism	953	908	979	1,091	1,131	1,178	1.9%	1.8%	1.8%	2.0%	2.0%	2.19
Medical Physics	N/A	N/A	N/A	302	477	525	N/A	N/A	N/A	0.6%	0.9%	1.09
Physics of Climate	606	583	580	562	573	526	1.2%	1.1%	1.1%	1.0%	1.0%	1.09
Physics Education Research	427	531	564	592	578	590	0.8%	1.0%	1.1%	1.1%	1.0%	1.19
Plasma Astrophysics	426	420	414	415	399	387	0.8%	0.8%	0.8%	0.8%	0.7%	0.79
Shock Compression of Cond Matter	378	331	425	376	472	354	0.7%	0.6%	0.8%	0.7%	0.9%	0.69
Soft Matter	N/A	668	1,278	1,533	1,885	1,952	N/A	1.3%	2.4%	2.8%	3.4%	3.5%
Statistical & Non-Linear	992	984	1,134	1,261	1,386	1,449	2.0%	1.9%	2.1%	2.3%	2.5%	2.69
FORUMS												
Early Career Scientists	N/A	N/A	N/A	162	2960	4009	N/A	N/A	N/A	0.3%	5.3%	7.3%
Education	4,492	4,456	4,449	4,440	4,267	4,305	8.9%	8.6%	8.4%	8.2%	7.7%	7.89
Graduate Student Affairs	4,910	4,969	5,602	6,106	6,431	6,497	9.7%	9.6%	10.6%	11.3%	11.6%	11.89
History of Physics	3,527	3,493	3,518	3,496	3,302	3,385	7.0%	6.8%	6.6%	6.5%	6.0%	6.19
Industurial & Applied Physics	6,871	6,797	7,173	7,292	7,067	6,835	13.6%	13.2%	13.5%	13.5%	12.8%	12.49
International	3,779	3,712	3,983	4,284	4,186	4,179	7.5%	7.2%	7.5%	7.9%	7.6%	7.69
Outreach& Engaging the Public	1,350	1,525	1,781	1,886	1,965	2,110	2.7%	3.0%	3.4%	3.5%	3.5%	3.89
Physics & Society	5,803	5,676	5,785	5,906	5,782	5,770	11.5%	11.0%	10.9%	10.9%	10.4%	10.5%
SECTIONS												
Far West	2,735	2,655	2,543	2,683	2,996	2,994	5.4%	5.2%	4.8%	5.0%	5.4%	5.49
Four Corners	1,998	1,896	1,829	1,808	1,893	1,809	4.0%	3.7%	3.4%	3.3%	3.4%	3.39
Mid-Atlantic	1,218	1,408	1,595	1,692	1,747	1,702	2.4%	2.7%	3.0%	3.1%	3.2%	3.19
New England	2,490	2,409	2,626	2,599	2,553	2,667	4.9%	4.7%	4.9%	4.8%	4.6%	4.89
New York State	2,524	2,405	2,638	2,811	2,809	2,799	5.0%	4.7%	5.0%	5.2%	5.1%	5.19
Northwest	1,222	1,242	1,283	1,283	1,311	1,253	2.4%	2.4%	2.4%	2.4%	2.4%	2.39
Ohio Region	1,498	1,520	1,521	1,596	1,619	1,551	3.0%	3.0%	2.9%	3.0%	2.9%	2.89
Prairie	952	974	994	1,037	1,095	1,059	1.9%	1.9%	1.9%	1.9%	2.0%	1.99
Southeastern	2.638	2.598	2.587	2.593	2.589	2.498	5.2%	5.0%	4.9%	4.8%	4.7%	4.59
Texas	1.531	1.671	1.707	1.609	1.685	1.583	3.0%	3.2%	3.2%	3.0%	3.0%	2.99

2014 - 50,578

Budget and Finances for DBIO

Report 2019-2020: Vernita Gordon, DBIO Sec/Tres

As of December 2019, the most recent date for which a financial report is available, we are in a good position. I am submitting a PDF of that report separately.

Highlights include:

In 2019, we got a (to me unexpected) donation of \$12,000, I believe thanks to the efforts of Bill Bialek, and even without that our net revenue would have been greater than our net expenditures – total revenue was about \$46,000, and total expenses were about \$20,000. Our biggest expense was \$8,800 for student travel grants for the March Meeting in Boston in 2019. The other large-ish expenses were for food and beverage for the business meeting (a little less than \$4000 total). This expense keeps creeping up over time – it was larger in Boston than it was in LA, and larger in LA than it was in New Orleans. This partly reflects the fact that charges are higher in Boston and LA than in New Orleans. If the March Meeting keeps growing we are going to become more and more limited in what cities have convention centers large enough to host it and therefore these "reception" expenses are going to keep growing. However, given that we are solidly in the black and our income from dues and from share of the March Meeting is growing also, I don't think this is a matter of immediate concern.

I have a mild preference for splitting the March Meeting so that DBIO could go to a smaller meeting, but a Treasurer's report is not really the appropriate place to discuss this, plus I don't have strong feelings about this and I am rotating off of ExComm.

The 2020 March Meeting is obviously super weird. Because the real-world meeting was cancelled and all registration fees will be refunded, I think that we will not be getting our usual share of March Meeting fees, which was about \$18,000 in 2019. That is a big deal because that was nearly half of income in 2019 – if you exclude the generous \$12,000 donation mentioned above, it was more than half. I did ask APS to cancel our food and beverage order for the DBIO Business Meeting as soon as I heard that the meeting was cancelled, so I hope that we will not be on the hook for that.

We had told 17 graduate students that they would get travel grants to attend March Meeting, and I did not feel it was fair to leave them on the hook for non-refundable costs after the meeting was cancelled. I consulted with other members of ExComm and, with their consent, I told those students to get refunded as much as they could and to send me receipts for what they couldn't get refunded and DBIO will reimburse them up to the amount of the promised travel grant. To date this doesn't look like it will be a huge expense but I haven't heard back from most of the grant awardees yet.

Membership report

I'm going to report membership from the 2019 election roster because that's what I have and I don't think APS staff really have time to do extra things right now. As of November-ish 2019 we

had 2,314 members (defined as eligible to vote in the DBIO election). In 2018 we had 2073, so that is more than 10% growth in a year. That seems good to me although I don't know how it compares to past years or to other divisions. This is speculation, but I think we may also have gotten a membership bump temporarily because of the March Meeting being in Boston, with lots of colleges. 16.9% of eligible members voted in the 2019 election, whereas 19.1% voted in the previous election. To what degree that was awkward timing of the election over Thanksgiving I don't know, although I did extend the election longer than usual to last into the week after Thanksgiving, with reminder emails, to try to overcome that. If we had lots of extra students on the roster in 2019 because of the Boston March Meeting, it may be that they just didn't vote.

Ending

Thank you for working with me and for DBIO the past four years. On my part, it has been great to work with you and get to know you better. Especially in light of the difficult circumstances of the 2020 March Meeting, I am really impressed with how you have pulled together. I have enjoyed being the DBIO secretary/treasurer and, although I am ready for a break now, I think I would enjoy doing something like this in the future.

Discussion on applications for Invited Sessions by ExComm members

Question posed by Phil Nelson, Program Chair 2020, to the rest of the Exec Committee:

Is the excomm comfortable with the program committee accepting invited session proposals from its own members?

After discussion, we agreed: Yes, this is OK, as long as standard recusal protocols are followed when discussing such proposals.

APPENDIX on TIPS for the PROGRAM COMMITTEE

Sample e-mail to DBIO members: Be sure to revise all web links, emails, names, and dates below!!

Message to members of the APS Division of Biological Physics Approved by Phil Nelson, DBIO Chair-elect



Division of Biological Physics American Physical Society

The Division of Biological Physics needs your ideas to organize the March Meeting in 2020! We have two ways for you to help: focus sessions and invited sessions. The descriptions of these can be found on the forms linked below.

Please use the linked online forms to submit ideas for:

- <u>Invited Session submission form</u>
- Focus Session submission form

Submissions are due by June 14, 2019.

In order to help you collect your thoughts and ideas, you can use the following Worksheet Word documents. However, **please do not submit Word documents and use the above Google Forms only**; this will greatly help us with data entry.

- <u>Invited Sessions planning Worksheet</u>
- Focus Sessions planning Worksheet

Email <u>DBIO.info@gmail.com</u> with questions/comments, and please cc nelson@physics.upenn.edu

Please note that for both kinds of session, your proposal will be much stronger if you get your proposed invited speakers to confirm their willingness to attend and present. There is a place on the forms to indicate whether you have such a commitment. Also note that anyone who has given a "technical" (research) talk in the preceding year is not eligible to give another such talk this year. Ask your suggested speakers to confirm their eligibility.

Thank you for supporting DBIO and contributing to the success of the APS March Meeting!

Phil Nelson, Chair-elect of APS DBIO, March Meeting/DBIO Program Chair 2020