

NAME OF SPECIALTY SECTION Biological Modeling

ANNUAL REPORT: 2018-2019

May 1, 2018 to April 30, 2019

I. Officers/Committees:

<u>Officers</u>	<u>2017-2018</u>	<u>2018-2019</u>
President:	Jeffery M Gearhart	Jeffrey William Fisher
Vice President:	Jeffrey William Fisher	Brad Reisfeld
Vice President-Elect:	Brad Reisfeld	Miyoung Yoon
Secretary/Treasurer:	Martin B Phillips	Tammie Covington
Past President	Eva D McLanahan	Jeffery M Gearhart
Councilors:	Anne Elizabeth Loccisano	Anne Elizabeth Loccisano
	Andy Nong	Alicia Paini
PDA Representative:	Miao Li	Miao Li
GSLC Representative:	Axelle Marchand	Axelle Marchand

Committees: The BMSS 2019 Best Paper Award committee was formed by the officers (excluding students) and chaired by Brad Reisfeld (BMSS Vice President). The review process involved electronic searches and nominations from the BMSS membership. The initial screening process resulted in 684 papers, which were further filtered based on BMSS membership to a list of 51 papers. The executive committee of BMSS then reviewed the list and selected papers to become semifinalists. The consensus list of semifinalists comprised five papers for which the BMSS officers used ranked choice voting to identify the winner and two runners up.

II. Activities:

2019 SOT Annual Meeting Reception was held in Baltimore MD Tuesday March 11, 2019, from 6:00 PM to 7:30 PM. Approximately 100 people were in attendance. Dr. Jeffrey W. Fisher called the meeting to order at 6:00 PM.

Business Meeting Speaker: N/A

Officer Meeting Minutes:

Attendance:

(Present) Jeff Gearhart, Jeff Fisher, Brad Reisfeld, Miyoung Yoon, Tammie Covington, Anne Loccisano, Miao Li, Dustin Kapraun (incoming councilor), Yi-Hsien Cheng (incoming post-doc representative), Michel Bteich (incoming student representative)

(Absent) Axelle Marchand

Action Items from Meeting:

- Jeff F, Miyoung and Brad:
 - will ask Simulations Plus about including some training with the free license Simulations Plus gives to make the license more useful
- Brad:

- Look into other Wiki-type options for storing BMSS information and files
- Miao:
 - Upload poster to our storage site (to be determined) and document where all the poster is put up at SOT

Meeting Minutes

Call to Order – Jeff Fisher

Meeting was informal over pizza without a firm start and end time. Some attendees had to leave before the meeting was over and some came in after we had started due to other obligations.

- Awards and requirements:
 - Award requirements were presented
 - Abstract award – no stipulation regarding SOT membership
 - All agreed with having no stipulations for BMSS membership
 - Discussed whether we should require less paperwork to apply for awards
 - Monetary student award for working on abstract to submit to SOT to increase applications for some of the awards
- Increasing BMSS membership:
 - Broaden focus of BMSS to get more members
 - Try marketing to areas where research grants are
 - Open to more to QSP modeling, dynamics
 - Literature searches to find student biological modeling papers and reach out to invite them to become BMSS members – biological modeling not just PBPK
 - Offer student membership as part of student awards
 - Make openness of reception more known (i.e., don't have to be member to attend)
- Simulations Plus free license as part of student awards:
 - Discussed whether it appears we are endorsing Simulations Plus – we aren't supposed to be endorsing software
 - Discussed whether the Simulations Plus license is useful
 - What value does it have to the student
 - Would a cash prize be better
 - Maybe other software would be better
 - Include some training or internship with free license (particularly for real-world application of software)
 - Does Simulations Plus have any record of how many of their free licenses have been activated?
- Wiki for storing information/files
 - Brad has set up initial location but is looking into some other options
 - Using ToXchange for storing information
 - How is it organized?
 - Do we have any control on this?
 - Any potential issues with SOT with using Wiki?
 - Will try Wiki idea for now – Brad is in charge
 - Miao will upload poster, document where all it is put up at SOT

- Ideas to maintain staying relevant
 - Marketing -- lack of marketing by BMSS resulted in Computational Toxicology Specialty Section
 - Make it better known that we're not just PBPK modeling
 - Pharmacodynamic
 - QSAR
 - Agent based
 - Systems biology
 - Bioinformatics
 - Perhaps not limiting Best Paper award to require that at least one author is an SOT member
 - Let professors know more about field and opportunities in biological modeling
 - Do more webinars that aren't focused on PBPK modeling
 - Do joint webinars
 - We do one with RASS
 - Try to do one with Comp Tox SS
 - Have awardees give webinars
 - Recruiting – like e-mails from journals asking you to submit
 - Incorporate machine learning to screen abstracts
 - Problem with students attending SOT
 - Trouble getting approval to attend
 - Difficulty in having the money to travel to SOT
 - Need to get PIs/professors more involved in recruiting
 - Platform sessions – SOT pays for travel for non-SOT presenters
 - Tap into some pharmacometric trainees for recruitment
 - Recruit people who collect the data for modeling and not just those doing the modeling
 - Sponsor/propose sessions that tie the data collection and modeling the data together – maybe partner with another specialty section
 - Collaborate more with other specialty sections
 - Propose session – 4 or 5 speakers
 - What type of session?
 - Roundtable?
 - Endorsement of sessions gives us visibility as well as helps the session
- Recommended officer training webinars for new officers
- Treasury Report
 - Mentioned slight downward trend of general fund balance and need to be judicious in spending funds to avoid increasing trend
 - Summary of 2018 fiscal year balances
 - Revenues of \$4,253 versus \$4,465 for 2017
 - Expenses of \$5,367 versus \$6,820 for 2017
 - Net loss of \$1,114 versus \$2,355 for 2017
 - Fiscal year-end balance of \$10,016 versus \$11,129 for 2017
 - Sources of revenue
 - Membership dues – \$2,540
 - Registration fees – \$1,136

- Interest – \$477
 - Contribution – \$100
- Expenses
 - Annual reception – \$3,926
 - Monetary awards – \$850
 - Mentoring luncheon – \$239
 - Award plaques – \$197
 - Officer meeting – \$154
- Mentoring luncheon
 - Discussed other options for mentoring luncheon
 - Limited food options if we do luncheon through SOT
 - Expensive if done through SOT
 - EPA does mentoring events at the EPA without lunch
 - Talk to each mentor
 - Like speed dating – mentors speak to students for a prescribed time and then move to another student
 - Students ask where they can learn to do PBPK modeling – there is an online traditional class at Kansas State

Awards:

2019 Andersen-Clewell Trainee Award – Dr. Wei-Chun Chou, post-doctoral fellow mentored by Dr. Zhoumeng Lin at Kansas State University. **Bayesian evaluation of physiologically based pharmacokinetic modeling for perfluorooctanesulfonate (PFOS) to characterize the interspecies uncertainty between mice, rats, monkeys, and humans** has been selected by the Risk Assessment Specialty Section (RASS) and Biological Modeling Specialty Section (BMSS) of the Society of Toxicology (SOT).

2019 Perry J. Gehring Award for Biological Modeling – Ms. Axelle Marchand, Graduate student at Université de Montréal, mentored by Dr. Sami Haddad. **“Evaluating the impact of heat stress and individual characteristics on the toxicokinetics of volatile chemicals”**.

2019 Best Trainee Abstract Award – Dr. Longfei Chao, Postdoctoral Fellow mentored by Dr. Panos Georgopoulos at Rutgers, The State University of New Jersey. **“Simulation of Macrophage Activation Dynamics under Various Microenvironment Signals using an Agent-Based Modeling Approach”**.

The best abstract award was established in 2018 the BMSS best trainee abstract award is focuses on highlighting trainees' research. This is open to all SOT graduate and postgraduate. This year, we had 18 honorable mentions and a winner with the best abstract, which were selected from 169 abstracts of 837 total trainee abstracts submitted to SOT. Selection criteria was based on biologically-based computational modeling research that contributed to the fields of biological modeling, risk assessment, and improved knowledge for toxicological mechanisms.

Students also received simulation software from Simulations Plus (awarded by Mr. John DiBella).

2019 Best Paper Award –
Simulating exposure-related behaviors using agent-based models embedded with needs-based artificial intelligence.

Brandon N, Dionisio KL, Isaacs K, Tornero-Velez R, Kapraun D, Setzer RW, Price PS. J Expo Sci Environ Epidemiol. 2018 Sep 21. doi: 10.1038/s41370-018-0052-y.

2019 SOT Annual Meeting Courses/Sessions:

CE Courses:

Continuing Education Course: Applications and Review of Physiologically Based Pharmacokinetic Modeling for Regulatory Risk Assessment

Current Dose-Response Modeling Strategies and Applications in Chemical Risk Assessment

Workshops:

Predicting Metabolic Clearance Rates for Drug Leads and Environmental Chemical Risk Assessment

Platform Sessions:

Symposium Session: Integrated 'Omics Approaches to Toxicity Assessments

Roundtables:

A Multi-Stakeholder Dialogue on Using Proprietary Modeling Platforms to Support Risk Assessment and Regulatory Decisions

Endowment Fund Details: Dr. Patricia Ruiz has agreed to be our financial steward. She has asked for donations in our second newsletter.

- Perry J. Gehring Biological Modeling Student Award Endowment
 - Fiscal year-end balance of \$52,562
 - Calendar year-end balance \$52,662 – contribution of \$100
- Andersen/Clewell Trainee Award Fund
 - Joint with RASS
 - Fiscal year-end balance of \$54,735
 - Calendar year-end balance \$54,835 – contribution of \$100

Newsletters: Two newsletters were sent out to the membership this year, one constructed with the leadership of by Dr. Miyoung Yoon and the other newsletter with the leadership of Dr. Patricia Ruiz.

Teleseminars: Two BMSS teleseminars were conducted in 2018-2019, one of which was in collaboration with RASS.

Dec. 12th 2018, Dr. Miyoung Yoon presented, “*In Vitro to in Vivo Extrapolation (IVIVE) to Support New Approach Methodologies (NAMs)-based Safety Assessment: A Tiered Approach with a Focus on the Consideration of Kinetics and Metabolism*”.

January 18th, 2018. Mr. Conrad Housand presented, “*Migration of AcsIX Model Code to Magnolia*”

White Papers: N/A

Contributions to SOT website: Dr. Nan-Hung is a post-doc at Texas A&M kindly updated the website.

Other Specialty Section 2018-2019 Activities: N/A