George I. Mias

Curriculum Vitae

Chief, Systems Biology Division, Institute for Quantitative Health Science and Engineering,
Assistant Professor,Department of Biochemistry and Molecular Biology,
Adjunct Assistant Professor, Department of Physics and Astronomy,
Adjunct Assistant Professor, Department of Pediatrics and Human Development,
Michigan State University

EDUCATION

- **Yale University**, New Haven, CT 06520
  - Ph.D. in Physics, 2007 (4.0)
  - M. Phil. in Physics, 2003
  - B.S. & M.S. in Physics, 1997-2001 (3.81, *Magna Cum Laude with Distinction in Physics*)

HONORS, AWARDS AND SCHOLARSHIPS

- Jean P. Schultz Endowed Biomedical Research Fund Faculty Awardee, MSU (2017)
- NIH Pathway to Independence (PI) award, Career development award funded by National Human Genome Research Institute (NHGRI), K99/R00 (2013 - 2017),
- Stanford Genome Training Program Fellowship (2010-2011)
- J.W. Gibbs Fellowship (2001-2003)
- DeForest Pioneers Award for Distinguished Creative Achievement in Physics (May 2001)
- Phi Beta Kappa (elected member in the Fall 2000)
- Yale Physics Department's Nominee for American Physical Society LeRoy Apker Award (2000)
- Financial support provided in part by (Yale University, New Haven, CT 06520):
  - 2001 - 2003 — John Sloane Fellowship
  - 2000 - 2001 — Wellemeyer Scholarship
  - 1999 - 2000 — George W. Darr Memorial Scholarship
  - 1999 - 2000 — Wellemeyer Scholarship
  - 1998 - 1999 — Henry M. Nodelman Scholarship
  - 1998 - 1999 — Wellemeyer Scholarship

EMPLOYMENT

- **Michigan State University**, East Lansing, MI 48924
  - *2014 - Present* — Assistant Professor, Department of Biochemistry and Molecular Biology,
    Department of Physics and Astronomy (Adjunct),
    Department of Pediatrics and Human Development (Adjunct),
    Chief, Systems Biology Division, Institute for Quantitative Health Science and Engineering (IQHSE)

- **Stanford University**, Stanford, CA 94305
  - *2009 - 2014* — Post Doctoral Scholar, Snyder Laboratory, Department of Genetics
- **Yale University**, New Haven, CT 06520
  - *2008 - 2009* — Lecturer/Assistant in Instruction Physics, Physics Department
  - *2008 - 2009* — Math and Science Tutor, Yale College
  - Summer 2008 — Summer Instructor, Yale Summer School
  - 2001-2007 — Graduate Research Assistant, Yale Physics Department
  - Summer 2001 — Summer Instructor, Yale Summer School

RESEARCH EXPERIENCE

- **G. Mias Lab**, Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI 48824 http://georgemias.org
  - *2014 - Present* — Personalized medicine applications to immunologic disorders
    - — Integrative omics analysis of drug effects in cells
    - — Transcriptomics/proteomics/metabolomics (asthma/leukemia)
    - — Aging and Disease
    - — Dynamic network analysis
    - — Complex systems and critical phenomena
    - — Sequencing: Statistical noise characterization of genomic sequences and homology, new mapping methodology and quality control
    - — Networks: Statistical network inference from dynamical omics data; topology and transition characterization in dynamic networks.
    - — Computational tools/frameworks for omics integration (mathiomica.org)
    - — Two Clinical Trials Protocol Director, Active: *Vaccination responses in younger and older adults* (clinicaltrials.gov)
    - — Protocol Director (IRB# 15-071, Active), *Pilot for evaluation of individuals for personalized medicine*

- **Department of Genetics**, Stanford University, Stanford, CA 94305

  Advisor: Professor Michael P. Snyder
  - *2009 - 2014* — Integrated Personal Omics Profiling (iPOP): Framework for analysis of dynamical omics data. Parallel analysis of transcriptome, proteome, metabolome and autoantibodyome and temporal integration. Variant detection in RNA and Protein. Applications to personalized medicine.
    - — Transcriptomics: Differential analysis of RNA-Seq data, quality control (concordant twin investigations; Asthma; hematopoietic stem cell differentiation).
    - — Proteomics: Framework for simultaneously identifying all protein-protein interactions in a cell.
    - — Metabolomics: Analysis of time series for mouse microbiome development.
    - — Protein Array: Detection of dynamical immune response in Myelodysplastic Syndromes, Multiple Sclerosis, Myeloma, Asthma and Rheumatoid Arthritis.
    - — Participated in multiple clinical trials and wrote study protocols for asthma, leukemia and personalized health care
    - — Sequencing: Statistical characterization of genomic sequences and homology.
    - — Networks: Statistical network inference from dynamical omics data; topology and transition characterization.
- **Theoretical Physics**, Department of Physics, Yale University, New Haven, CT 06520

  Ph.D. Dissertation Title*: Domains of Quantum Magnetism* (2007)

  Advisor: Professor Steven M. Girvin
  - *2006 - 2007* — Developed a theory for the time evolution of Bose-Einstein spinor condensates and subsequent domain formation using field theoretical techniques and a Lie algebra formalism to successfully explain experiments in ^{87}Rb.

- *2005 - 2006* — Investigated Ferromagnetism in quantum Hall bilayer systems by performing analytical field-theoretical calculations using a topological spinor Berry-phase/path-integral formalism.
- *2004 - 2005* — Performed analytic renormalization group calculations using smooth cutoffs in modified sine-Gordon models to investigate classical and quantum roughening, additionally modeling the effect of dipolar interactions as motivated by experiments in $LiHoF_4$.
- *2002 - 2003* — Developed a field-theoretical soliton model of domain walls motivated by research in quantum magnetism and quantum phase transitions in $LiHoF_4$ and investigated the duality relationships between this model and known statistical models.

- **Wright Nuclear Structure Lab (WNSL),** Yale University, New Haven, CT 06520

  Undergraduate Thesis Title: *Nuclear Structure: Differences in $R_{4/2}$ Ratios in Isotones and Isotopes*, (2000) - Nominated for APS Leroy Apker Award

  Advisor: Professor Richard F. Casten

  - *1999 - 2000* — Performed shell-model calculations and computational nuclear structure research to model collective behavior in nuclei and classify trends in magic nuclei.

    Advisors: Dr. Victor Zamfir and Professor Richard F. Casten
  - *Summer 2000*— Performed angular-correlations perturbation experiments, developing detection techniques for a moving tape collector and set up cryogenic magnet cooling apparatus.

    Advisor: Professor Alex Wolf
  - *Summer 1999*— Investigated gamma rays in 4π-Ge detectors (GRETA-Gamma Ray Energy Tracking Array) by developing an algorithm to identify and track positron-electron annihilation events in the detector, simulating the array using GEANT/Mathematica.

    Advisor: Professor Cornelius Beausang
  - *Summer 1998*— Developed accelerator techniques and vacuum technology, upgraded a linear accelerator and performed beam optimization experiments.

    Advisor: Professor Richard Hyder

MENTORING EXPERIENCE

- **Michigan State University**, East Lansing, MI 28912
  - Member of nine Thesis Committees
  - Supervising and mentoring of thirteen undergraduate students (including ten Professorial Assistants [MSU Honors College]), recipients of five research awards
  - Supervising and mentoring of four graduate students [3 PhD, 1 Masters], guided applications for fellowships, one external fellowship and one honorary mention. Additionally, two internal fellowship recipients, two internal awards.
  - Supervising and mentoring of two postdoctoral scholars
- **Stanford University**, Stanford, CA 94305
  - Mentoring of three graduate students in guided research projects
  - Mentoring of one postdoctoral scholar
- **Yale University**, New Haven, CT 06520
  - Mentoring of eleven undergraduate students

TEACHING EXPERIENCE

- **Michigan State University**, East Lansing, MI 28912
  - *Fall 2018* — Instructor, BMB 961-3: *Topics in Biochemistry* (3 lectures: Systems Biology, Networks and Systems Medicine)
  - *Spring 2018* — Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80min lectures)
  - *Summer 2017* — Preceptor,Genetics and Genomics Journal Club, MSU College of Human Medicine (2 x 2hr sessions)
  - *Spring 2017* — Instructor, MMG 835: *Eukaryotic Molecular Genetics* (14 x 80min lectures)
  - *Fall 2016* — Instructor, BMB 961-3: *Topics in Biochemistry* (3 lectures: Systems Biology, Networks and Systems Medicine)
  - *Spring 2016* — Instructor, MMG 835: *Eukaryotic Molecular Genetics* (10 x 80min lectures)
  - *Fall 2015* — Instructor, BMB 101*: Frontiers in Biochemistry* (1 lecture: Genomics, Other Omics and Personalized Medicine).
  - *Fall 2014* — Instructor, BMB 961-3*: Topics in Biochemistry* (2 lectures: Systems Biology and Network Theory).
- **Yale University**, New Haven, CT 06520
  - *Spring 2009* — Academic Math/Science Tutor, Yale College Dean's Office (one on one and group tutoring in all undergraduate classes offered at Yale University in physics, introductory astronomy and all levels of calculus and linear algebra).
    — Teaching Fellow, *Physics 166b: General Physics Laboratory I* (taught section, assisted in class design).
  - *Fall 2008* — Instructor, *Physics 165a: General Physics Laboratory I* (assisted in syllabus and class design, in charge of coordinating all aspects of three sections and supervising three teaching fellows).
    — Academic Math/Science Tutor, Yale College Dean's Office.
    — Teaching Fellow, *Physics 410a: Classical Mechanics* (help sections for students).
  - *Summer 2008* — Instructor, Yale College, *Physics S165a: General Physics Laboratory I* (designed class syllabus, in charge of administering the entire class, supervising one teaching fellow and two sections, also lectured one section).
    — Instructor, Yale College, *Physics S166b: General Physics Laboratory II* (designed class syllabus, in charge of administering the entire class, supervised and coordinated two sections and two teaching fellows).
  - *Fall 2002* — Teaching Fellow, *Physics 420a: Statistical Thermodynamics* (assisted in exam design, administered exams, graded assignments and held help sections).
  - *Spring 2002* — Teaching Fellow, *Physics 205b: Modern Physical Measurement I* (administered class, graded lab reports and supervised experiments).
    — Teaching Fellow, *Physics 206b: Modern Physical Measurement II* (administered class, graded lab reports and supervised different kinds of experiments).
  - *Fall 2001* — Teaching Fellow, *Physics 205a: Modern Physical Measurement I* (administered class, graded lab reports and supervised experiments).
    — Teaching Fellow, *Physics 206a: Modern Physical Measurement II.*
  - *Summer 2001* — Instructor, *Physics S165: General Physics Laboratory I* (redesigned summer class syllabus, adapted version still currently in use; in charge of administering the entire class, supervising two sections with one teaching fellow and lectured one section).

TECHNICAL EXPERIENCE

- **Programming:** Javascript (Typescript), Swift, Python, C, Objective-C, Fortran, PASCAL, GEANT4, LaTeX, HTML
- **Systems:** Mac OS X, iOS, UNIX, Linux, Windows
- **Applications:** Mathematica, MATLAB, Octave, R, Excel, Illustrator, Cytoscape, Pajek, MySQL

LANGUAGES

- English
- Greek
- French
- Russian

PROFESSIONAL AFFILIATIONS

- Phi Beta Kappa (Member since 2000)
- American Physical Society (Member since 2003)
- New York Academy of Sciences (Member since 2007)
- Apple Developer (Member since 2008)
- US Human Proteome Organization (Member since 2012)
- Human Proteome Organization (Member since 2012)
- American Society of Human Genetics (Member since 2012)
- Data-Enabled Life Sciences Alliance (Member since 2013)
- Association of Biomolecular Resource Facilities (Member since 2014)
- International Chinese Statistical Association (Member since 2014)
- International Society for Computational Biology (Member since 2015)

PROFESSIONAL SERVICE

- **Grant Review**
  - National Aeronautics and Space Administration (NASA), USA (2017-2019)
  - Czech Science Foundation (GACR), Czech Republic (2016)
  - Swiss National Science Foundation (SNSF), Switzerland (2015)
  - Medical Research Council (MRC), UK (2014)
- **Journal Review** (year of first review)
  - Oxford Bioinformatics (2018)
  - BMC Bioinformatics (2017)
  - Journal of Forensic Science (2017)
  - Cell Systems (2016)
  - PLOS ONE (2016)
  - Journal of Proteome Research (2015)
  - Molecular and Cellular Proteomics (2015)
  - Scientific Reports (2015)
  - PLOS Computational Biology (2014)

UNIVERSITY SERVICE

- **Michigan State University**, East Lansing, MI 28912
  - Biochemistry and Molecular Biology:
    - Qualifying Exam Committee (2018)
    - Computers Committee (2017-2018)

- Strategic Planning Committee (2014-15)
- Academic Competitive Fund (ACF) Proposals (2014-15)
  - Center for Precision Pediatrics
  - Maternal-Infant Center
  - Computational Genomics
- Advisor for:
  - Curriculum for The Department of Computational Mathematics, Science and Engineering (CMSE) computational medicine course
  - IQ Center faculty recruitment
- Member of Advisory Committee:
  - Bioinformatics Course Committee (2016)
- Seminars
  - Organizer and host for Science at the Edge weekly seminar series (2014-19)
  - Organizer for Biochemistry and Molecular Biology Departmental Retreat (2016)
  - Organizer and co-host for Precision Medicine Forum (2015)
  - Host for Biochemistry and Molecular Biology Colloquium (2014)
- Search Committees
  - Chair of Pediatrics and Human Development ACF search committee (2016-19)
  - Member of CMSE search committee (2015-16)
  - Member of Pediatrics and Human Development ACF search committee (2015-16)

PUBLICATIONS

Monographs

- **George I. Mias§** *Mathematica for Bioinformatics: a Wolfram Language approach to Omics,* Springer (2018), ISBN 978-3-319-72377-8 DOI: 10.1007/978-3-319-72377-8

Refereed Journals

**contributed equally*

§corresponding author

1. L.R.K. Brooks, **George I. Mias§**, *Streptococcus pneumoniae's Virulence and Host Immunity: Aging, Diagnostics, and Prevention,* Frontiers in Immunology 9:1366 (2018). doi:10.3389/fimmu.2018.01366
2. H. Im, V. Rao, K. Sridhar, T. Mishra, R. Chen, J. Hall, Y. Zhang, L. Xiao, **George I. Mias**, M, P. Snyder, P.L. Greenberg *Distinctive Transcriptomic and Exomic Abnormalities within Myelodysplastic Syndrome Marrow Cells,* Leukemia and Lymphoma (2018) DOI: 10.1080/10428194.2018.1452210
3. R. Roushangar and **George I. Mias§,** *MathIOmica-MSViewer: A Dynamic Viewer for Mass Spectrometry Files for Mathematica,* Journal of Mass Spectrometry, 52: 315–318, (2017) DOI: 10.1002/jms.3928
4. **George I. Mias§,** T. Yusufaly, L. Brooks, R. Roushangar, V. Singh, C. Christou**,** *MathIOmica: an integrative platform for dynamic omics,* Scientific Reports 6 37237, (2016) DOI: 10.1038/srep37237
5. A. Marcobal, T. Yusufaly, S. Higginbottom, M. Snyder, J.L. Sonnenburg§, **George I. Mias§**, *Metabolome progression during early gut microbial colonization of gnotobiotic mice,* Scientific Reports 5, 11589; (2015) DOI: 10.1038/srep11589
6. M. Snyder, **George I. Mias,** L.I. Stanberry, E. Kolker, *Metadata checklist for the integrated personal omics study: proteomics and metabolomics experiments,* OMICS: A Journal of Integrative Biology, 18(1): 81-85, (2014) DOI: 10.1089/omi.2013.0148

7. E. Kolker, V. Özdemir, L. Martens, W. Hancock, G. Anderson,…, **George I. Mias** (37/61; alphabetic order),…, G. Yandl, *Towards more transparent and reproducible omics studies through a common metadata checklist and data publications,* OMICS: A Journal of Integrative Biology,18(1):1-9 (2014) DOI: 10.1089/omi.2013.0149
8. **George I. Mias***, R. Chen*, K. Sridhar, Y. Zhang, D. Sharon, L. Xiao, H. Im, M.P. Snyder, P.L. Greenberg, *Specific Plasma Autoantibody Reactivity in Myelodysplastic Syndromes* Scientific Reports 3:3311 (2013) DOI: 10.1038/srep03311
9. L.I. Stanberry, **George I. Mias**, W. Haynes, R. Higdon, M. Snyder, E. Kolker *Integrative analysis of longitudinal metabolomics data from a personal multi-omics profile,* Metabolites 3(3): 741-760 (2013) DOI: 10.3390/metabo3030741
10. R. Chen, S. Giliani, G. Lanzi, **George I. Mias**, S. Lonardi, K. Dobbs, J. Manis, H. Im, J.E. Gallagher, D.H. Phanstiel, G. Euskirchen, P. Lacroute, K. Bettinger, D. Moratto, K. Weinacht, D. Montin, E. Gallo, G. Mangili, F. Porta, L.D. Notarangelo, S. Pedretti, W. Al-Herz, W. Alfahdli, A.M. Comeau, R.S. Traister, S. Pai, G. Carella, F. Facchetti, K.C. Nadeau, M. Snyder, L.D. Notarangelo, *Whole Exome Sequencing Identifies TTC7A Mutations for Combined Immunodeficiency with Intestinal Atresia,* Journal of Allergy and Clinical Immunology 132(3): 656-664.e17 (2013) , DOI: 10.1016/j.jaci.2013.06.013
11. **George I. Mias**, M. Snyder, *Personal Genomes, Quantitative Dynamic Omics and Personalized Medicine*, Quantitative Biology 1(1):71-90 (2013) DOI:10.1007/s40484-013-0005-3
    Featured Article - Editor Selection
    Cover Story; Designed Inaugural Cover and wrote Cover Blurb
12. S. Liu, H. Im, A. Bairoch, M. Cristofanilli, R. Chen, S.Dalton, E. Deutsch, D. Fenyo, S.Fanayan,C. Gates, P .Gaudet; M. Hincapie, S. Hanash, H. Kim, S. Jeong, E. Lundberg, **George Mias**, R. Menon, Z. Mu, E. Nice, Y. Paik, M. Ahlén, L. Wells, W. Lance, S. Wu, F. Yan, F. Zhang, Y. Zhang, M. Snyder, G. Omenn, R. Beavis, H. Ronald, W. Hancock, *A Chromosome-Centric Human Proteome Project (C-HPP) to Characterize the Sets of Proteins Encoded in Chromosome 17*, Journal of Proteome Research , 12(1):45–57 (2013), DOI: 10.1021/pr300985j PMID: 23259914
13. **George I. Mias**, M. Snyder, *Multimodal dynamic profiling of healthy and diseased states for personalized healthcare*, Clinical Pharmacology and Therapeutics 93(1):29-32 (2013), DOI: 10.1038/clpt.2012.204 PMID: 23187877
14. R. Chen*, **George I. Mias***, J. Li-Pook-Than*, L. Jiang*, H.Y.K. Lam, R. Chen, E. Miriami, K.J. Karczewski, M. Hariharan, F.E. Dewey, Y. Cheng, M.J. Clark, H. Im, L. Habegger, S. Balasubramanian, M. O'Huallachain, J.T. Dudley, S. Hillenmeyer, R. Haraksingh, D. Sharon, G. Euskirchen, P. Lacroute, K. Bettinger, A.P. Boyle, M. Kasowski, F. Grubert, S. Seki, M. Garcia, M. Whirl-Carrillo, M. Gallardo, M.A. Blasco, P.L. Greenberg, P. Snyder, T.E. Klein, R.B. Altman, A.J. Butte, E.A. Ashley, M. Gerstein, K.C. Nadeau, H. Tang, M. Snyder, *Personal Omics Profiling Reveals Dynamic Molecular and Medical Phenotypes,* Cell 148(6):1293-1307 (2012), DOI: 10.1016/j.cell.2012.02.009 PMID : 22424236
    Featured as Genome Advance of the Month by National Human Genome Research Institute (NHGRI)
15. **George I. Mias§**, Nigel R. Cooper and S. M. Girvin, *Quantum Noise, Scaling and Domain Formation in a Spinor BEC*, Physical Review A 77(2):023616 (2008) DOI: 10.1103/PhysRevA.77.023616
16. **George I. Mias§** and S. M. Girvin, *Absence of Domain Wall Roughening in a Transverse-Field Ising Model With Long-Range Interactions*, Physical Review B 72(6):064411 (2005) DOI: 10.1103/PhysRevB.72.064411

In Review

- L.R.K, Brooks**, George I. Mias§** *Data-Driven Analysis of Age, Sex, and Tissue Effects on Gene Expression Variability in Alzheimer's Disease* (in review; bioRxiv https://doi.org/10.1101/498527)

- R. Roushangar, **George I. Mias§** *Stratified computational meta-analysis of 2213 acute myeloid leukemia patients reveals age- and sex-dependent gene expression signatures* (in review; bioRxiv https://doi.org/10.1101/494948)

In Preparation

- V.V. Singh*, L.R.K. Brooks*, Masamitsu Kanada, Jin He, **George I. Mias*§** *Integrative Omics Response Profiling of Drug Treatments in B Cells* (in preparation - Omics data submitted to GEO and MassIVE and approved)
- L.R.K, Brooks**, George I. Mias§** *Immunosenescence, Gene Expression and Aging* (in preparation)
- L.R.K, Brooks**, George I. Mias§** Meta-analysis of *Viral infections and Gene Expression Profiling* (in preparation)

Other Media

- R. Roushangar, **George I. Mias§** *ClassificaIO: machine learning for classification graphical user interface* (2018) - DOI:10.5281/zenodo.1472979, https://pypi.org/project/ClassificaIO (see also bioRxiv 240184; doi: https://doi.org/10.1101/240184).
- E. Wong, **George I. Mias**, iPOP resource website at: http://snyderome.stanford.edu (2012-2014)
- R. Chen, J.A. Jenks, S. Lyu, S. Runyon, J. Li-Pook-Than, G. Euskirchen, P. Lacroute, , **George I. Mias§**, K. Nadeau§, M. Snyder§, *An Omics View of Asthma through Discordant Monozygotic Twins* (data deposited to dbGap [ID: phs000886.v1.p1])

Selected Proceedings And Conferences

1. L.R.K. Brooks, **George I. Mias§***, Meta-analysis of gene expression variability in Alzheimer's disease.*, American Society for Human Genetics Annual Meeting, San Diego, CA (2018)
2. **George I. Mias§***, Longitudinal individualized saliva omics profiling*, American Society for Human Genetics Annual Meeting, San Diego, CA (2018)
3. **George I. Mias§***, Integrative Proteomics and Transcriptomics for Personalized Wellness: Using Saliva and Blood to Monitor Immune Response in Individuals*, Human Proteome Organization HUPO 17th Annual World Congress, Orlando, FL (2012)
4. **George I. Mias§***, Multi-omics profiling for individualized precision wellness using blood and saliva*, American Society for Human Genetics Annual Meeting, Orlando, FL (2017)
5. L.R.K. Brooks, **George I. Mias§***, Longitudinal Integrative Omics of Rituximab Treatment on Primary B Cells*, American Society for Human Genetics Annual Meeting, Orlando, FL (2017) - Reviewers' Choice Abstracts selection
6. V.V. Singh, **George I. Mias§**, *Integrative Omics Response Profiling of Drug Treatments in B Cells, The Genomics of Common Diseases*, Baltimore, MD (2016)
7. V.V. Singh, **George I. Mias§**, *Integrative Dynamic Omics of Drug Treatment Responses in B Cells, Festival of Genomics Boston*, MA (2016)
8. **George I. Mias.** *Integrating dynamic omics responses for universal personalized medicine.* J. Anim. Sci. 94:201-201, doi:10.2527/jam2016-0416 (2016)
9. **George I. Mias§**, T. Yusufaly, R. Roushangar, L. Brooks, V. Singh, *Resources For Integrative Dynamic Omics and Personalized Medicine,* Keystone Symposia on The Cancer Genome and Genomics and Personalized Medicine, Banff, Canada (2016)
10. **George I. Mias§**, H. Im, E. Mitsunaga, R. Chen R, J. Li-Pook-Than, L. Jiang, M. Snyder, *Network Inference, Integrative Dynamic Omics and Personalized Medicine*, American Society for Human Genetics 12th Annual Meeting, San Francisco, CA (2012)

11. **George I. Mias**, R. Chen, J. Li-Pook-Than, L. Jiang, H. Tang, M. Snyder *Personalized Medicine Through Integrative Dynamic Omics*, Human Proteome Organization HUPO, 11th Annual World Congress, Boston, MA (2012)
12. **George I. Mias***, R. Chen*, J. Li-Pook-Than*, L. Jiang*, H. Lam, H. Tang, M. Snyder., *Personalized Medicine Through Integrative Dynamic Omics*, Biology of Genomes, Cold Spring Harbor Laboratory, NY (2012)
13. R. Chen*, **George I. Mias***, J. Li-Pook-Than*, L. Jiang*, et al., *Integrative Personalized Omics Profiling Reveals Complex Molecular Phenotypes and Monitorable Medical Risks* US HUPO, San Francisco, CA (2012)
14. R. Chen*, **George I. Mias***, J. Li-Pook-Than*, L. Jiang*, et al. *Personalized Omics Profiling Unveils Complex Molecular Phenotypes and Monitorable Medical Risks,* Keystone Symposia: Complex Traits: Genomics and Computational Approaches, Breckenridge, CO (2012)
15. **George I. Mias***, R. Chen.*,Y. Zhang, D. Sharon, L. Xiao, K. Sridhar, M.P. Snyder, P.L. Greenberg, *Proteomic Screening for Plasma Autoantibody Biomarkers in MDS Using Protein Microarrays*, Leukemia Research **35**, Supplement 1, S23, (2011)
16. **George I. Mias**, S. M. Girvin, *Bose-Einstein S=1 Spinor Condensates, Dynamics, Noise, Statistics and Scaling*, Bulletin of the American Physical Society (2007)
17. **George Mias,** S. Girvin, *Domain Walls and Roughening Transition Possibilities in a Transverse-field Ising Model with Long-range Interactions,* Bulletin of the American Physical Society (2005)

- **Internal: Yale Physics Department**, Yale University, New Haven, CT 06520
  1. **George I. Mias**, *Domains of Quantum Magnetism,* Doctoral dissertation, (2007) ISBN 978-0-549-37286-8
  2. **George I. Mias**, *Nuclear Structure: Differences in $R_{4/2}$ Ratios in Isotones and Isotopes,* Undergraduate Physics Thesis (2000);

     Yale University Physics Departmental Nominee for American Physical Society's LeRoy Apker Award

ORAL PRESENTATIONS

1. *Longitudinal Omics for Profiling Individualized Immune Responses Using Saliva and Blood,* **Invited Speaker**, University of Alabama at Birmingham, AL (2018)
2. *Integrative Proteomics and Transcriptomics for Personalized Wellness: Using Saliva and Blood to Monitor Immune Response in Individuals*, **Promoted Speaker**, Human Proteome Organization HUPO 17th Annual World Congress, Orlando, FL (2018)
3. *Integrating Dynamic Omics for Personalized Wellness.* **Weekly Speaker***,* Biomedical Engineering Department at the Institute for Quantitative Health Science and Engineering, Michigan State University, East Lansing, MI (2018)
4. *Multiple omics profiling towards precision wellness.* **Invited Speaker** for Genomics@Wayne, Wayne State University, Detroit, MI (2017)
5. *Integration of multiple dynamic omics and individualized wellness.* **Invited Speaker***,* Department of Computational Mathematics, Science and Engineering, Michigan State University, East Lansing, MI (2017)
6. *Multi-omics profiling for individualized precision wellness using blood and saliva.* **Platform Talk,** American Society for Human Genetics Annual Meeting, Orlando, FL (2017)
7. *Integration of Multiple Dynamic Omics and Individualized Precision Health,* **Invited Speaker,** Colgate-Palmolive Company, Piscataway, NJ (2017)

8. *Precision individualized wellness: profiling immune activation of multiple 'omics in healthy and asthmatic, individuals,* **Invited Speaker**, Festival of Genomics Boston, Boston, MA (2017)
9. *Integrating dynamic omics responses towards universal personalized medicine,* **Invited Speaker**, Festival of Genomics California, San Diego, CA (2016)
10. *Integrating dynamic omics responses for universal personalized medicine,* **Invited Speaker**, Grand Rounds**,** Department of Pediatrics and Human Development, Michigan State University, East Lansing (2016)
11. *Integrating dynamic omics responses for universal personalized medicine,* **Invited Plenary Speaker**, Functional Annotation of Animal Genomes (FAANG) ASAS-ISAG Joint Symposium, Salt Lake City, UT (2016)
12. *Integrating Dynamic Omics Responses for Personalized Medicine,* **Invited Speaker,** Department of Microbiology and Molecular Genetics, Michigan State University, East Lansing, MI (2016)
13. *Resources For Integrative Dynamic Omics and Personalized Medicine,* **Selected Talk**, Joint Session of the Keystone Symposia on The Cancer Genome and Genomics and Personalized Medicine, Banff, Canada (2016)
14. *Omics and Personalized Medicine,* **Invited Speaker,** University of the Virgin Islands, US Virgin Islands (2016)
15. *Systems Medicine: Dynamic Omics Integration,* **Invited Speaker**, Emerging Caribbean Scientists Program ,University of the Virgin Islands, US Virgin Islands (2016)
16. *Precision Medicine* **Organizer and Speaker** of Precision Medicine Forum, Michigan State University, East Lansing, MI (2015)
17. *First Steps Towards Personalized Medicine: Dynamic Omics Integration and MathIOmica,* **Invited Speaker**, 4th Annual Cyberinfrastructure (CI) Forum, Michigan State University, East Lansing, MI (2015)
18. *Dynamic Omics Integration: a First Step Towards Personalized Medicine,* **Invited Speaker,** CMED Foundational Sciences Seminar Series, Central Michigan University College of Medicine, Mt Pleasant, MI (2015)
19. *Dynamic Omics Integration: a First Step Towards Personalized Medicine,* **Invited Speaker,** Science at the Edge, Michigan State University, East Lansing, MI (2015)
20. *Integrating Dynamic Omics for Personalized Medicine,* **Seminar Speaker,** Department of Pediatrics and Human Development, Michigan State University, Grand Rapids, MI (2015)
21. *2016 HPC Hardware Funding,* **Invited Panelist**, Cyber-Infrastructure Days, Michigan State University, East Lansing, MI (2014)
22. *Integrative Dynamic Omics, Networks and Personalized Medicine,* **Invited Speaker**, International Chinese Statistical Association - Korean International Statistical Society Applied Statistics Symposium, Portland, OR (2014)
23. *Dynamic Omics Methods for Personalized Medicine: Quantitative Omics Integration* **Invited Speaker**, Association of Biomolecular Resource Facilities ABRF 2014 Annual Meeting, Albuquerque, NM (2014)
24. *Integrating Dynamic Omics into Personalized Medicine,* **Invited Keynote Speaker** and **Session co-chair (***Molecular Diagnostics in Pathology*) 8th European Meeting on Molecular Diagnostics, The Hague / Scheveningen, The Netherlands (2013)
25. *Integrative Dynamic Omics Profiling: First Steps Towards Personalized Medicine*, **Invited Keynote Speaker**, Systems Biology 2013 From Cells to Ecosystems, DEPI, Melbourne, Australia (2013)
26. *Integrative Personal Omics Profiling and Personalized Medicine*, **Invited Talk**, Conference on Predicting Cell Metabolism and Phenotypes, SRI International, Menlo Park, CA (2013)
27. *Multimodal dynamic profiling of healthy and diseased states for personalized healthcare*, **Invited Talk**, Molecular Medicine Tri-Conference, San Francisco, CA (2013)

28. *Personalized Medicine Through Integrative Dynamic Omics*, Talk, Human Proteome Organization HUPO 11th Annual World Congress, Boston, MA (2012)
29. *Integrative Dynamic Omics for Personalized Medicine*, **Invited Seminar**, Arizona State University Biodesign Center, Tempe, AZ (2011)
30. *Dynamical Whole Omics Profiling*, Talk at Centers of Excellence in Genomic Science – CEGS Ninth Annual Grantee Meeting, Boston, MA (2011)
31. *Exploring the Dynamics of Whole Omics Profiling*, **Invited Seminar**, Evol Genome Seminar Series - Stanford, CA (2011)
32. *Proteomic Screening for Plasma Autoantibody Biomarkers in MDS Using Protein Microarrays*, Talk, 11th International Symposium on Myelodysplastic Syndromes., Edinburgh, United Kingdom (2011)
33. *Dynamic Personal Profiles Using Omics Technologies*, **Selected Talk**, Annual Stanford Symposium for Genomics and Personalized Medicine, Stanford, CA (2011)
34. *Bose-Einstein F=1 Spinor Condensates: Quantum Dynamics, Fluctuations and Domain Formation*, **Invited Seminar**, University of Toronto, Canada (2007)
35. *Bose-Einstein S=1 Spinor Condensates, Dynamics, Noise, Statistics and Scaling,* Talk, APS March Meeting, Denver, CO (2007)
36. *Roughening Transitions of Domain Walls and Dipolar Interaction Effects,* **Invited Seminar**, PITP/Les Houches Ecole de Physique Summer School on Quantum Magnetism, Les Houches, France (2006)
37. *Domain Walls and Roughening Possibilities in a Transverse-field Ising Model with Long-range Interactions*, Talk, APS March Meeting, Los Angeles, CA (2005)
38. *Introduction to Roughening Transitions,* **Invited Seminar**, Applied Physics Monday Evening Seminar, Yale University, New Haven, CT (2005)

RESEARCH SUPPORT

Active

- Jean P. Schultz Endowed Biomedical Research Fund, **George I. Mias** (PI) 2017 - 2018
- 18-18BRASH2-0006 **George I. Mias** (PI) 02/01/2019 (est) - (2021.)
  Title: Intergrative Personalized Omics Profiling Next Steps: Detection and Classification of Deviations from Wellness.
  Funding Agency: Translational Research Institute for Space Health (TRISH)
  Role: **Principal Investigator**

Pending

- 1 R01 (Application ID: 9798548) **George I. Mias** (PI) 07/01/2019 - 06/30/2024
  Title: Systems Medicine: Computational Methods and Experimental Resources for Longitudinal Monitoring of Health in Individuals Using Blood and Saliva
  Funding Agency: NIGMS
  Role: **Principal Investigator**
- NSF (ID: 1902690) **George I. Mias** (PI) 07/01/2019 - 06/30/2022
  Title: Temporal Characterization of Cell-Specific Responses to Drug Induced Perturbations
  Funding Agency: DMS/NIGMS
  Role: **Principal Investigator,** co-PIs J.He and M.Kanada

- 1 R01 Michael Bachmann (PI) 07/01/2019 - 06/30/2024
  Title: In vivo genetic analysis in mice to determine the genes and signaling pathways in cancers that drive their escape from immune surveillance and checkpoint blockade
  Funding Agency: NCI
  Role: **Co-Investigator**

Completed

- 1 R00 HG007065-03 **George I. Mias** (PI) 03/15/14 - 02/28/17
  Title: Integrative Dynamic Omics Profiling: A First Step Towards Personalized Medicine Pathway to Independence Award (R00)
  Funding Agency: NHGRI
  Role: **Principal Investigator**
- 1 K99 HG007065-01 **George I. Mias** (PI) 03/14/13 - 02/28/14
  Title: Integrative Dynamic Omics Profiling: A First Step Towards Personalized Medicine Pathway to Independence Award (K99)
  Funding Agency: NHGRI
  Role: **Principal Investigator**
- 5 T32 HG000044-14 Michael Snyder (PI) 01/01/11 - 09/30/11
  Institutional Training Grant in Genome Science (Stanford University)
  This Grant supports the Stanford Genome Training Program (SGTP)
  Role: **Trainee**
- 5 T32 HG000044-13 Arend Sidow (PI) 01/01/10 - 12/31/10
  Institutional Training Grant in Genome Science (Stanford University) This Grant supports the Stanford Genome Training Program (SGTP)
  Role: **Trainee**