Newsletter 2016–2017

School of Arts and Sciences

New York City College of Technology

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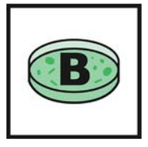


DEAN'S MESSAGE

DEAR COLLEAGUES,

Welcome to the 2016-2017 edition of the Newsletter for the School of Arts and Sciences.

A huge spectrum of topics are represented in the pages of this Newsletter, including some fascinating interdisciplinary projects. In fact, one of the purposes of a Newsletter is to share information on the scholarly activities being conducted by our colleagues and better enable us to explore possible collaborations that cut across multiple disciplines.

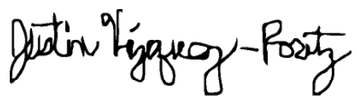
Over the past year, we have produced more than 500 scholarly and creative works, many of which have involved undergraduate researchers. We have brought in more than three million dollars in federal funding, 29 PSC CUNY Research Awards, and world-renowned scientists, thinkers and writers to share their wisdom with our students. Despite our current space constraints and financial limitations, we have continued to achieve so much. To the faculty members of the School of Arts and Sciences, I say 'bravo'!

Furthermore, we have had a record number of graduating students from every single one of our degree programs, including the first graduating cohort from Professional and Technical Studies. In parallel with the continued growth and evolution of our existing degree programs, the BS in Applied Computational Physics has been launched, and the development of more programs is underway. As the top five nationwide ranking of our College's economic mobility rate demonstrates, we are in the business of transforming our students' lives.

I am honored to be working alongside people who are full of exciting ideas, determination, and passion. I think you will agree when I say it has been a challenging year but a good year for our School. While I'm looking forward to our new building and the space it will open up in the Namm complex, I believe that the future success of our School hinges upon using our intellectual capital towards our common goals.

My heartfelt gratitude goes out to the Grants and Research Committee for all of their hard work in overseeing this Newsletter. I would especially like to thank Professors Giovanni Ossola, Jeremy Seto and Christopher Swift for doing such a fantastic job of editing the material. I am also grateful to Julia Jordan for enabling us to collaborate with the talented Faculty Commons Design Team on this project. In particular, I would like to thank the project designer Erin Mayoyo for her creative input and design work. Last but not least, thank you to all of the faculty members who have shared these narratives of their work and accomplishments that have provided us with a glimpse into the world of their research.

Best regards,



Justin Vazquez-Poritz
Dean for the School of Arts & Sciences

EDITORS' MESSAGE

DEAR COLLEAGUES,

We are pleased to present the 2016–17 Newsletter of the School of Arts and Sciences. The range and depth of this year's accomplishments are remarkable. We feel privileged to be able to work with such an impressive group of scholars and teachers!

This edition of the Newsletter includes a section entitled From the News Forum, which features postings made by faculty on an OpenLab forum from the 2016-17 academic year. You are encouraged to visit and submit to the News Forum OpenLab blog to provide updates and new news on an ongoing basis. The Forum allows you to compose posts and upload documents, pictures, and links into a public repository.

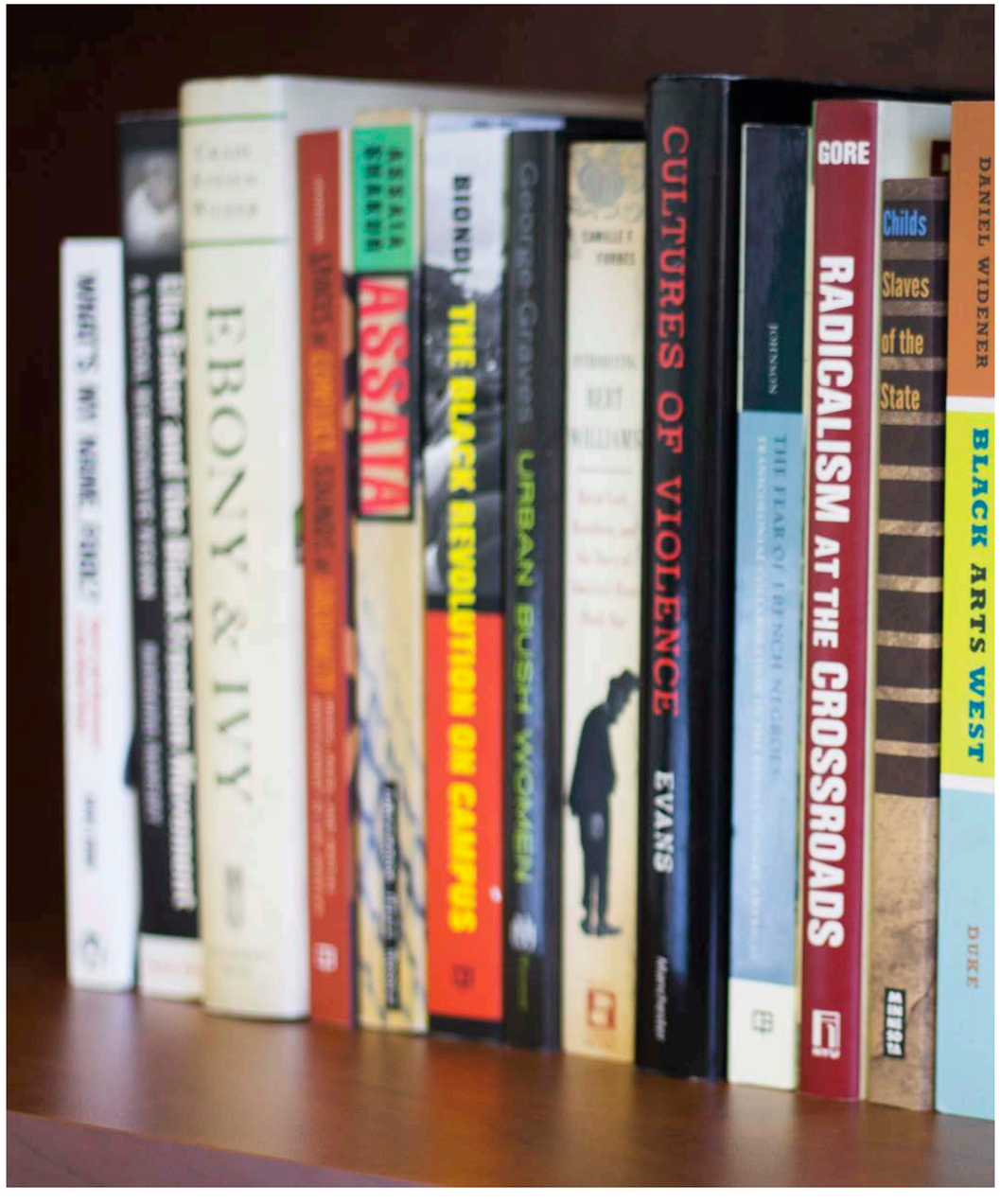
An archive of SOAS Newsletters from the past is also available on the site. Here's the link: https://openlab.citytech.cuny.edu/soasnews/

2017–18 Newsletter will begin in the Fall of 2018. Instructions are provided at the end of this Newsletter.

We would like to give special thanks to the student Design Team of the Faculty Commons, in particular Erin Mayoyo. An additional thanks to Paul Nembhard, for creating the departmental icons. Thanks also to all the members of the Grants and Research Committee that contributed to this issue of the Newsletter, in particular Emilie Boone, Laura Ghezzi, Joseph Jeyaraj, Gulgun Bayaz Ozturk, and Mai Zahran.

With best wishes,

Giovanni Ossola
Jeremy Seto
Christopher Swift



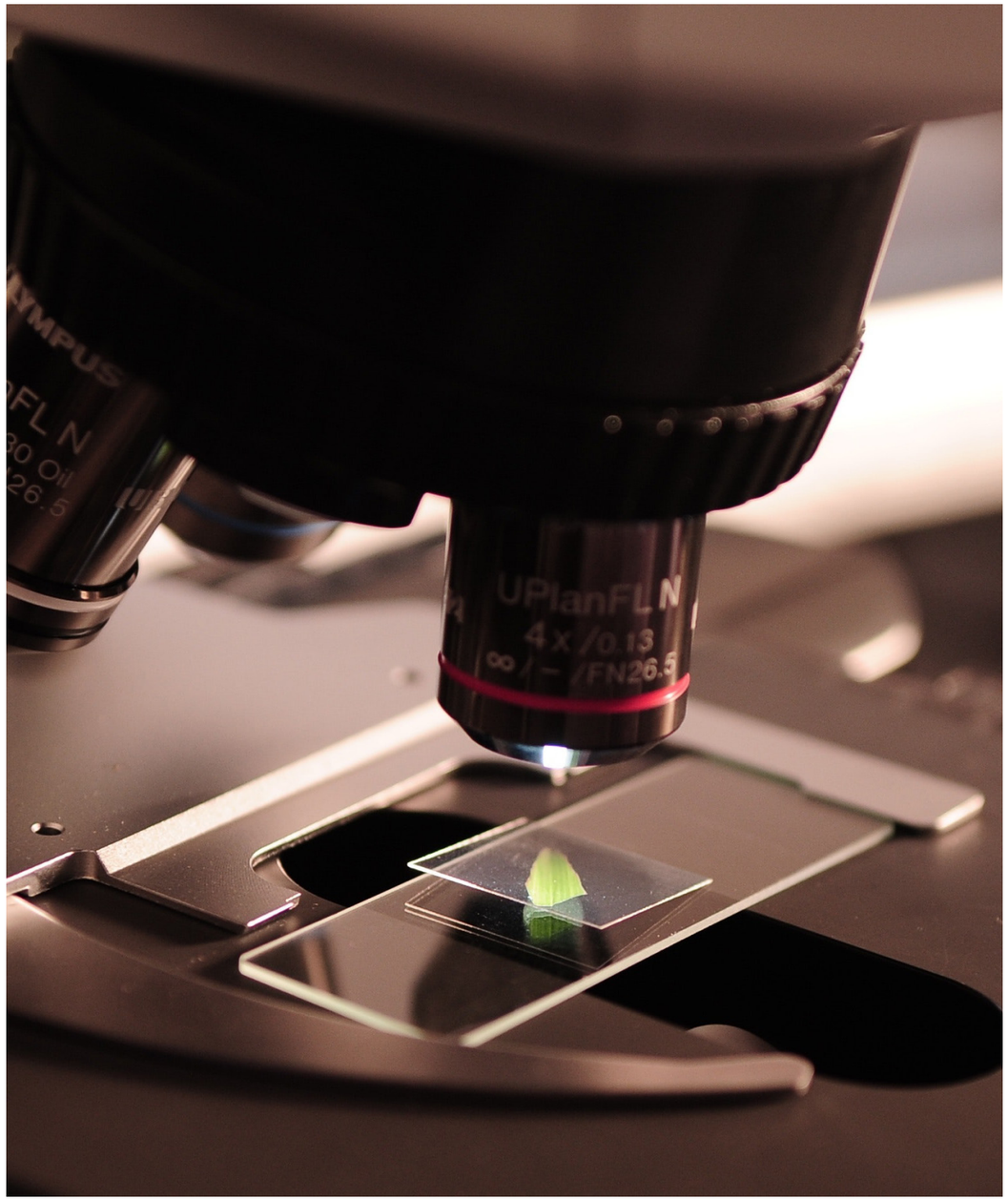
AFRICAN AMERICAN STUDIES

THE AFRICAN AMERICAN STUDIES DEPARTMENT

The African American Studies Department is designed to bring into disciplinary focus, through inter-departmental and multicultural course offerings in Liberal Arts and Sciences, the history and culture of Africans and their descendants, throughout the diaspora from antiquity to the present. Readings and classrooms lectures bring research, critical analysis, synthesis, and interpretation to bear on the contributions of peoples of African descent to the genesis and the development of human civilization. African American Studies is fundamentally concerned with the stimulation of intellectual growth and the development of humanist principles. Major events during the 2016-2017 academic year included Black Solidarity Day and Black History Month programming.

PROFESSOR EMILIE BOONE

I spent the 2016-2017 academic year working on an article for submission to the peer-reviewed journal American Art. In addition, I developed and taught new syllabi for three courses in the African American Studies (AFR) department. In collaboration with my AFR colleagues, I enjoyed planning campus-wide programs including Black Solidarity Day and Black History Month. Highlights from last year include a public interview with the 2017 MacArthur Fellow Dawoud Bey at Howard University.



BIOLOGICAL SCIENCES

THE BIOLOGICAL SCIENCES DEPARTMENT

The long lasting tradition of the Biological Sciences Department has been to serve the students interested in obtaining Associate Degree in Liberal Arts, Associate Degree in Sciences and in professional health programs. With the development of the Biomedical Informatics program in 2013, the department has increased the number of courses offered and expanded the student enrollment. The Biomedical Informatics program continued to graduate a large number of students with some continuing on to graduate programs in Spring 2017. The Department has revised the curriculum to enhance the standard of the program with forthcoming curricular changes to be announced.

Chief CLT Angelika Brekman received a PSC-CUNY Traditional A (60164-00 cycle 48) entitled “Nicotine Toxicity in Lung Cells and Implications for Electronic Cigarettes Use”. Professor Giannopoulou received an NIH R25 training grant in conjunction with the Weill Medical College of Cornell University: “Enhancing Diversity in Biomedical Data” that will greatly aid the students within the Biomedical Informatics Program in fulfilling their internship experiences, as well as providing professional development to students and faculty.

CHRISTOPHER BLAIR

During the past academic year I have continued to pursue my interests in teaching, research and service. I developed and taught two doctoral courses at the Graduate Center (Principles of Systematics, Molecular Ecology) that were well received by students. I also continue to mentor City Tech students on a variety of research projects. For scholarship, I published two papers in high impact journals in my field, applied for and received a PSC-CUNY grant, and currently have a NSF CAREER grant under review. Finally, I maintain active service at the department, college, and university levels. Examples include serving on departmental and college curriculum committees, the Faculty-Student Library Advisory Committee, and the First Year Experience committee. I also serve on the Graduate Council at the Graduate Center.

JEREMY SETO

Last Spring, I had participated in an Interdisciplinary Professional Health Panel at

Jeremy Seto and Davida Smyth at the ASM Microbe 2017 Meeting in New Orleans

Mercy College where I represented the basic sciences and Neurology in the discussion of stroke treatment. There, I focused on the future of treatments in conjunction with other healthcare providers by integrating individual patient data through the use of apps and wearables. I have continued my research collaboration with Dr. Davida Smyth in understanding the microbial diversity of local waterways. In conjunction with Dr. Smyth, I have presented at the American Society for Microbiology annual meeting (ASM Microbe) in New Orleans where I was also chosen for a Rapid Fire Talk. Upon my return, I gave the Keynote Talk at Barcode Long Island Meeting at the Cold Spring Harbor Laboratory. I had spent the summer mentoring 4 students in the College Now STEM Academy where we DNA barcoded local arthropods. A long standing project in collaboration with Dr. Javier Gonzalez-Maeso at Virginia Commonwealth University came to fruition as we published a paper in Nature Neuroscience on antipsychotic-induced HDAC2 transcription.

Ibi D, de la Fuente Revenga M, Kezunovic N, Muguruza C, Saunders JM, Gaitonde SA, Moreno JL, Ijaz MK, Santosh V, Kozlenkov A, Holloway T, Seto J, García-Bea A, Kurita M, Mosley GE, Jiang Y, Christoffel DJ, Callado LF, Russo SJ, Dracheva S, López-Giménez JF, Ge Y, Escalante CR, Meana JJ, Akbarian S, Huntley GW, González-Maeso J. Antipsychotic-induced Hdac2 transcription via NF-κB leads to synaptic and cognitive side effects. Nat Neurosci. 2017 Sep;20(9):1247-1259. doi: 10.1038/nn.4616. Epub 2017 Aug 7. PubMed PMID: 28783139.

Follow @travelswitheeyore

MERCER R. BRUGLER

Prof Brugler is a deep-sea evolutionary biologist that uses molecular tools to elucidate the evolutionary history of sea anemones and black corals. Undergraduates from City Tech are invited into Prof Brugler's molecular lab at the American Museum of Natural History to learn how to extract, amplify, sequence and analyze the DNA of deep-water anthozoans. For more inforamtion, please visit his Black Coral Lab website. To date, five City Tech students have participated NOAA-funded research cruises that deployed remotely operated vehicles to collect new specimens.

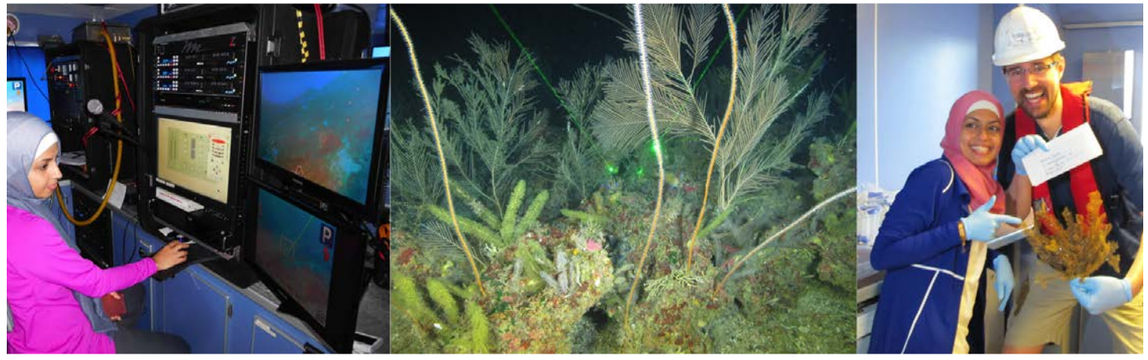
For more information, please see the following write-up that appeared in the CUNY Newsletter.

Prof Brugler recently published two articles in Scientific Reports (a Nature journal) and was senior author on the first: 1) Large-scale differences in microbial biodiversity discovery between 16S amplicon and shotgun sequencing, 2) Comparative transcriptomics reveal developmental turning points during embryogenesis of a hemimetabolous insect, the damselfly Ischnura elegans. Prof Brugler has been applying a new genomic tool to understand the evolution of anthozoans (hard corals, soft corals, sea anemones, tube anemones, zoanthids, corallimorphs and black corals): Ultra Conserved Elements (UCEs).

The results of this innovative approach are currently under review at Molecular Ecology Resources, but can be accessed online now at bioRxiv, the preprint server for biology (Title: Universal target-enrichment baits for anthozoan (Cnidaria) phylogenomics: New approaches to long-standing problems). Prof Brugler is also sequencing and assembling complete genomes of non-model organisms; the results of one such effort were published in Nature Communications (Title: Genome assembly and geospatial phylogenomics of the bed bug Cimex lectularius). Prof Brugler has also extended his research program into environmental DNA (eDNA) to elucidate the biodiversity of bacteria in the Amazon River. The first of many publications resulting from this extensive dataset were recently published in Microbial Ecology (Title: A Global eDNA Comparison of Freshwater Bacterioplankton Assemblages Focusing on Large-River Floodplain Lakes of Brazil).

Prof Brugler recently gave public presentations at the Secret Science Club and SUBMERGE! Marine Science Festival. Prof Brugler just received an invitation from the AMNH to participate in a live recording of Person, Place, Thing, which is hosted by Randy Cohen. Prof Brugler will be joined onstage by Mandë Holford, an Associate Professor in Chemistry from Hunter College (CUNY).

If you would like to keep up-to-date on Prof Brugler's at-sea adventures, please follow him on Twitter at @ProfBrugler. Lastly, Prof Brugler



City Tech student (and Bridges Scholar) Nadia Alomari recently joined Prof Brugler at sea in the Gulf of Mexico

will be teaching a new course at City Tech in Spring 2018 entitled Evolution (BIO-2250).

LIANA TSENOVA

The highlight of my work in the past year has been the leadership of the Bridges to the Baccalaureate Program at City Tech. The program is made possible by a $1.2M from the National Institute of Health. Conducted in partnership with Brooklyn College, the program presents an unprecedented opportunity to underrepresented students earning associate degrees at City Tech, to complete their bachelor's degree in biomedical and behavioral sciences at Brooklyn College. The most important and valuable component of the program is the experience students receive in mentored research. Activities include the establishment of a Research Skills Academy in the summer, followed by a two-semester research development and enrichment program, and culminating in an eight-week Summer Bridge Research experience at Brooklyn College prior to matriculation to the baccalaureate. All scholars work on a research project with a faculty mentor. In the third year of the grant 16 scholars were trained in research and eleven of them completed the Summer Bridge Research. Participation in scientific conferences plays a pivotal role in sustaining engagement in research, and building academic success for the Bridges scholars.

When you trace the future path for your students.
From left: Shenika Burke, Unyque Cruz, Juanita Marin, Prof. L. Tsenova and Jitendra Singh (Richie)

EVGENIA GIANNOPOULOU

Prof. Giannopoulou for the year 2016-2017 has published 2 peer-reviewed articles in the journals of Nature Communications and Cell Reports. She has also contributed one book chapter as first author and has 2 journal articles under review. She also participated in the conference "Festival of Genomics", held in Boston in June 27-29th, 2016.

1. Qiao Y, Kang K, Giannopoulou E, Fang C, Ivashkiv LB: IFN-γ Induces Histone 3 Lysine 27 Trimethylation in a Small Subset of Promoters to Stably Silence Gene Expression in Human Macrophages, Cell Rep. 2016.

2. Liu Y, Giannopoulou EG, Wen D, Falciatori I, Elemento O, Allis CD, Rafii S, Seandel M: Epigenetic profiles signify cell fate plasticity in unipotent spermatogonial stem and progenitor cells. Nat Commun. 2016.

3. Giannopoulou EG, Elemento O: Systematic discovery of chromatin-bound protein complexes from ChIP-seq datasets. Methods Mol Biol. 2017;1507:43-58.

Prof. Giannopoulou was active in grants writing. She recently (August 2017) received a ~$1.2M NIH award for Big Data.

- NIH R25 Big Data to Knowledge (BD2K) Enhancing Diversity in Biomedical Data – Funded ($1,147,050)

Role: PI, Project: City Tech-WCM Big Data Training Program in Biomedical Informatics.

- NIH R01 - Pending

Role: Collaborator, Project: A novel role of proteolytic pathway in osteoclastogenesis and arthritic bone resorption.

- GRTI 19 (Graduate Research and Technology Initiative) grant, 19 – Funded: $49,900

Role: Investigator, Project: Enhancement of computational facilities of the Center for Theoretical Physics for multidisciplinary research.

- NSF ABI (Advanced to Biological Informatics) - Pending

Role: Collaborator, Project: ABI Innovation: Data Analysis Notebook with Composable Languages.

NIH-funded Big Data to Biomedical Informatics Program for CityTech students

CHEMISTRY

THE CHEMISTRY DEPARTMENT

The Chemistry Department's principal responsibility is the teaching and learning of chemistry. The department has a variety of courses ranging from general chemistry, analytical chemistry, physical chemistry, instrumental chromatography and medicinal chemistry. In addition to Chemistry courses, the department as offers environmental science courses, one of which is an interdisciplinary course. The Chemistry courses are designed to provide the students with the practical experience needed to solve real-world problems. The Chemistry Department offers two degree programs: an Associate of Science in Chemical Technology and a Bachelor of Science in Applied Chemistry. The Applied Chemistry degree equips students with the knowledge and laboratory skills needed to succeed in the chemistry workforce.

Grants and Awards

Academically talented students with a financial need, in both the Associate and Bachelor of Science degree programs can apply for an NSF S-STEM: Advancing Student Futures in Science, Technology, Engineering, and Mathematics Scholarship. Prof. Samaroo is one of the grant's co- PI.

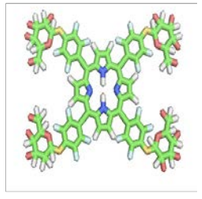
DIANA SAMAROO

Professor Diana Samaroo is interested in the application of biologically conjugated porphyrinoid compounds; the biochemical aspects of porphyrin-based photosensitizers for photodynamic therapy (PDT) and the application of porphyrin-type compounds as nanomaterials.

Supervised/mentored the following students:

Denia Saleh (Biomedical Informatics Internship); Jesam Usani (Biomedical Informatics) and Areeba Iqbal (Applied Mathematics) on an afterschool project with Daniel Hale during the winter session of 2016; Manuela Hoyos (Honors' project) entitled "5-Fluorouracil, Ifosfamide, and Topotecan: Three Organic Compounds Used in Cancer Treatment"; Alexandra DePasquale (who won 1st in the STEM division at the annual poster

Protein model



Porphyrin

session and was selected to present at the 11th City Tech Research Day).

She was awarded following grants

PSC-CUNY, co- PI, $3500, 2017-2018
City Tech Foundation Grant to support travel to the DOW Chemical Company in Pennsylvania

She reviewed for the following journals:

Refereed several articles for Journal of Chemical Education, Molecules and Langmuir

She published the following peer-reviewed articles:

Stevens, N.; **Samaroo**, D.; Akins, D. L. "Nonlinear optical switching properties of dye-doped inorganic/organic nanocomposite films." Journal of Nonlinear Optical Physics & Materials (2017) Vol. 26, No. 02, 1750015

Kostova,M.; Deiner, L.J.; **Samaroo**, D. "Quantification of Fluoride Ion Concentration in Commercially Available Teas." ADHA – Access (2016, December): 21-25.

O'Connor, N.; Abugharbieh, A.; Yasmeen, F.; Buabeng, E.; Mathew, S.; **Samaroo**, D.; Cheng, H.-P. "The Crosslinking of Polysaccharides with Polyamines and Dextran-Polyallylamine Antibacterial Hydrogels." International Journal of Biological Macromolecules (2015) 72, 88–93.

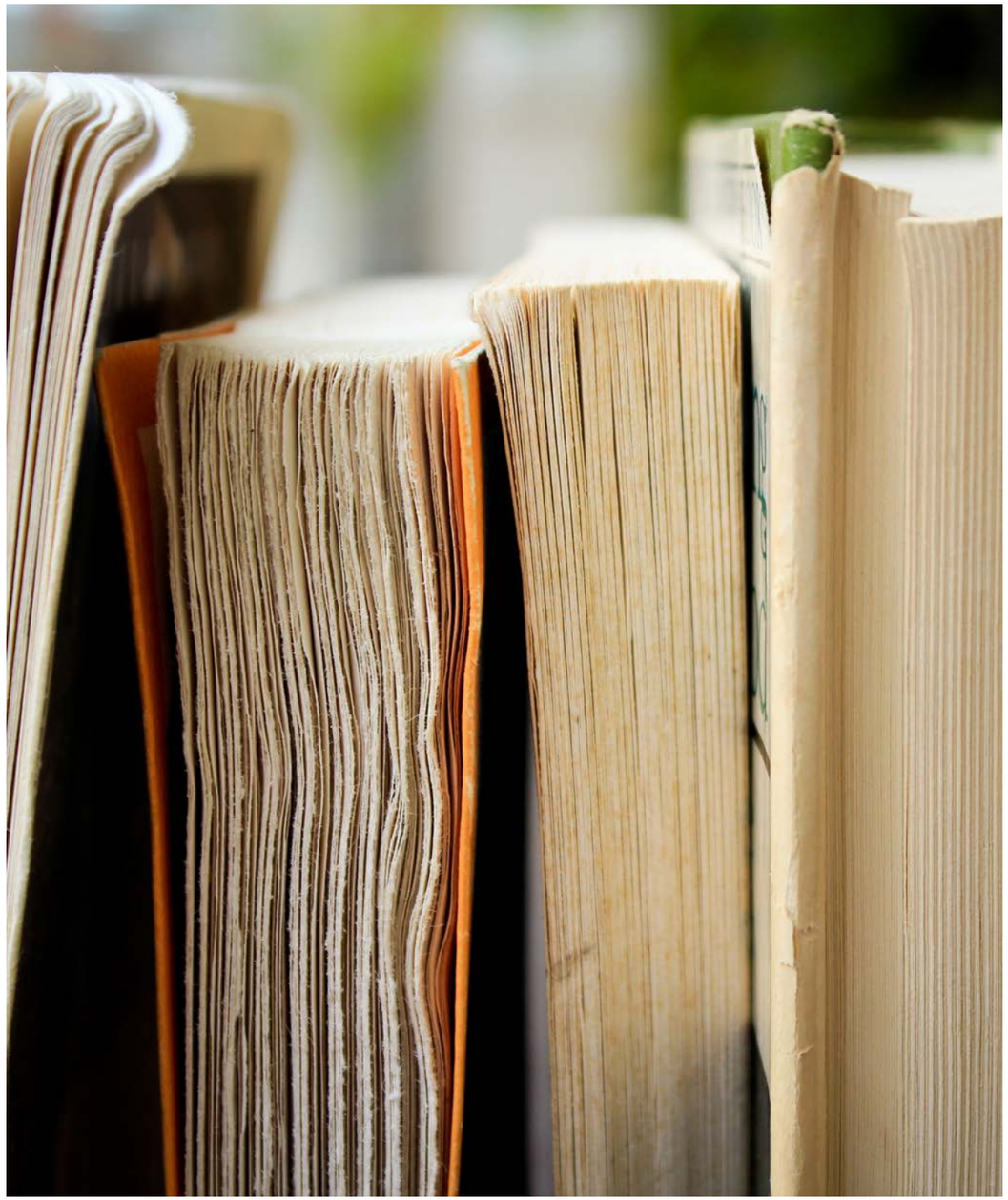
ALBERTO MARTINEZ

Looking back, I feel the academic year 2016-2017 was quite productive in both, research and teaching. I had two articles published in Acta Tropica and Medicinal Chemistry Research, respectively, and I attended two American Chemical Society meetings: the Undergraduate Research Symposium and the Middle Atlantic Regional Meeting. As per the teaching, I was really excited to offer and teach for the first time the course in Inorganic Chemistry as part of the recently launched BS in Applied Chemistry. It was quite a deal of work to prepare all material for lectures and laboratory sessions from scratch, but a truly rewarding experience. I hope the students enjoyed as much as I did!

NEW FACULTY

The Department of Chemistry welcomed one full-time senior college laboratory technician and one full-time sub Assistant Professor, Dr. Ivana Jovanovic.

IVANA JOVANOVIC



ENGLISH

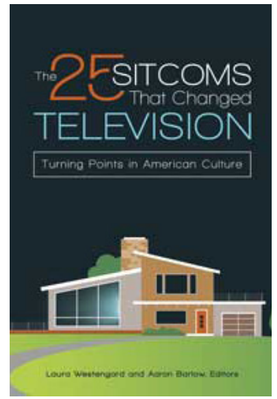
THE ENGLISH DEPARTMENT

The English Department offers a wide range of courses in the study of literature. These include lower-level introductory courses and upper-level specialized courses, which both satisfy core and major curriculum requirements, and provide students with rich experiences of classic and contemporary texts.

LAURA WESTENGARD

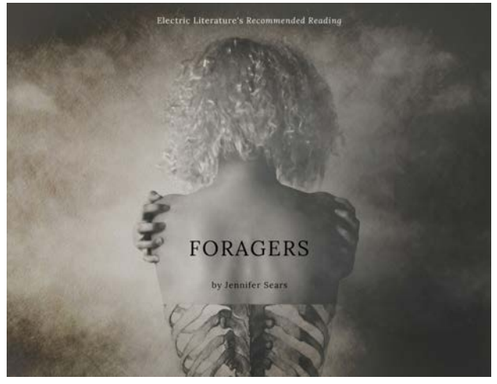
My scholarship in the 2016-2017 academic year has focused on the production of the book I co-edited with my colleague, Aaron Barlow. Entitled The 25 Sitcoms that Changed Television: Turning Points in American Culture the volume explores American culture after 1945 through the analysis of television sitcoms and their cultural resonances. The book is currently in production with Praeger, a press that "provides expert perspectives in both contemporary and scholarly nonfiction." The complete manuscript was submitted to the publisher in Spring 2017, and it is scheduled for print in December 2017. I also signed an advance contract with University of Nebraska Press for my book project, Gothic Queer Culture: U.S. Queer Communities and the Ghosts of Insidious Trauma. The book proposes the existence of a 20th and 21st century queer culture that responds to and challenges traumatic marginalization by creating a distinctly "Gothic" aesthetic. Finally, I presented at two top-tier national conferences—American Studies Association and Modern Language Association. At MLA I presented a paper on the GL/Q Caucus panel based on my book project, Gothic Queer Culture. The GL/Q Caucus for the Modern Languages is affiliated with GLQ: A Journal of Lesbian and Gay Studies, a top journal in the field published by Duke University Press.

In Fall 2016, I also had the pleasure of teaching the first offering of a new course (originally created by Prof. Monique Ferrell) in the Gender & Sexuality Studies course cluster: Introduction to Women's Studies (Eng 2160). Check out the Gender & Sexuality Studies website that I created here.



Cover image for The 25 Sitcoms that Changed Television: Turning Points in American Culture

Design: Electric Literature; Image credit: "Anorexia," Mary Lock/Creative Commons



JENNIFER SEARS

Professor Jennifer Sears teaches first year writing and is a Faculty Coordinator for First Year Learning Communities. Her current pedagogical focus includes developing and implementing OER materials for her ENG 1101 courses and, with members of the Developmental Writing Committee, development of a new course combining developmental and credit-bearing writing courses. Forthcoming in 2018 is the 5th edition of The Companion for the First Year at City Tech, a guidebook designed to help students transition into college life and co-authored by fellow faculty and staff at City Tech. Professor Sears is currently finishing a book of short stories and a novel. A novel excerpt, "The Interrogator Recites a Love Song," originally published in Witness, was cited in Best American Short Stories 2016. Her story "Foragers" was published by Electric Literature in February 2017. Her recent non-fiction publications include an interview with fiction writer Mary Gaitskill in Guernica Magazine and a response to the poet Jeff Gundy's work in Mennonite Life. An NEH Summer Scholar in 2015, she is continuing research on Ralph Waldo Emerson's trip to Egypt in 1873.

Publications and awards cited above:

- "Foragers." Electric Literature. Recommended Reading. Issue 248. Feb. 15, 2017. Web.
- "Canticle for Gigi Sauvageau." Guernica: A Magazine of Art and Politics. Special issue: "Boundaries of Taste. n. page. Web. 15 June
- "Of Faith Broken Open and Other Evidences of Love (A Response to poet Jeff Gundy's Songs from an Empty Cage: Poetry, Mystery, Anabaptism, and Peace). Mennonite Life. Vol. 70. 1 June 2016. Web.
- "My Emerson." Emerson Society Papers Vol. 27.1 Spring 2016. Print. 9-11.
- Interview. Gaitskill, Mary. "Never the End." Interview with Jennifer Sears. Guernica Magazine. Web. 14 May 2016. Web.
- The Best American Short Stories, 2016. Ed. Junot Diaz. New York: Houghton Mifflin Harcourt. October 4, 2016. Print. "The Interrogator Recites a Love Song," published on list of "Other Distinguished Stories of 2015."

Conference Presentations and Readings:

- Speaker. Creative Evening. "Mennonite Writers Conference VIII." University of Winnipeg, Winnipeg, Manitoba, Canada. October 20, 2017.
- Speaker. Pros Prose Reading Series, Sidewalk Café, New York, NY. Oct. 5, 2017.
- Co-chair and Panelist. "The Quest: Being Female, Mennonite, and an Artist in New York City." Crossing the Line: Women of Anabaptist Traditions Encounter Borders and Boundaries. Eastern Mennonite University, Harrisonburg, VA. June 22-25, 2017. Co-chaired with City Tech Professor Jessica Penner.
- Panelist. "Creative Collaborations: First Year Learning Communities on City Tech's OpenLab,." CUE Conference: Accelerating Progress, Accelerating Equity: Improving Student Success in Developmental and Gateway Courses. Borough of Manhattan Community College. New York, NY. May 5, 2017. With First Year Learning Communities Faculty co-ordinators Karen Goodlad and Sandra Cheng and members of the City Tech Open Lab Team.
- Panelist. Emerson's Egypt. American Literature Association National Conference. San Francisco, CA. May 27, 2016.

JOSEPH JEYARAJ

Dr. Joseph Jeyaraj, national award winning author, was formerly Engineering faculty, and his doctoral reesearch (Situatedness, Othering, and Rhetorical Authority in Professional and Technical Writing) specializes in technical and professional writing.

He publishes in in the area of technical and professional writing and as well in areas such as usability, human computer interaction, Engineering writing, and the field of Rhetoric and Composition.

He is also director of the Engineering Communications Resource Center

His most recent research examines the relationship between visual and written communication in the area of Engineering writing and communication and argues that Engineering communication in order to address the weaknesses in both visual and written communication while harnessing their strengths as well should use both forms of communication.

The essay was published as follows with New York City College of Technology in the byline:

Jeyaraj, Joseph. Jeyaraj, Joseph. "Linear Narratives, Arbitrary Relationships: Mimesis and Direct Communication for Effectively Communicating Engineering Subject Matter Multimodally." Journal of Technical Writing and Communication. 47.1 (2017): 56-85.

HUMANITIES

THE HUMANITIES DEPARTMENT

The Humanities Department maintains a unique position within our college of technology. The department offers courses in art history, communication, foreign language, music, and theatre, providing students with laboratories for creative expression, cultural and historical understanding, and practical tool sets for work and living.

The department sponsors a monthly speaker series called **Works in the Works**. Once a month during Club Hours, a member of the Humanities faculty presents their research or creative work for the NYCCT community. Refreshments are provided. Presentations for the academic year 2016-2017 showcase the rich diversity of our faculty's research interests:

David Sánchez-Jiménez, 400 Years: *Cervantes in the Spanish Language and the Spanish Language in Cervantes*

Zhijian Qian, *Is There a Chinese Type of Abstraction? Abstract Ink Work by Contemporary Chinese Artists*

Matthew Harris, *Music by Harris, Lyrics by Shakespeare*

Denise Scannell, *Pinkie and The Blue Boy: Material Culture and Immigrant Identity*

Robert Redding, *Beyond Broadcasting*

Magdalena Igiel, *Reconstructing Polish National Identity: When Collective Memory Turns into Pop Culture*

Cathy Santore, *Delight in Disorder*

Sarah Standing, *350.org as Localized Trans-Global Performance*

DAVID SÁNCHEZ-JIMÉNEZ

Professor David Sánchez Jiménez´s research interests include the rhetorical organization of academic discourse; interculturalism in the rhetoric and sociopragmatic texts written in the second language; cognitive process involved in writing; and the learning of Spanish orthography.

Awards

- Grant "Globalizing the CUNY curriculum". April 2017. "Development of literacy in Spanish for heritage students at NYCCT. Building a Spanish heritage speakers track."

- PSC-CUNY Research Award Cycle 48. April 2017. "The Rhetorical Functions of Citation in College Academic Writing: A Cross-language Study on Master´s Thesis written in English and Spanish."

The two grants helped me develop a new course proposal that will contribute in the creation of a specific track for Spanish heritage speakers in the Spanish course sequence. Moreover, it allowed me to complete my research that I will present in the 1st International Conference on Corpus Analysis in Academic Discourse at the Universidad Politécnica de Valencia (Valencia, Spain) on 22-24 November 2017 and in the Congreso Universitario Internacional sobre la Comunicación en la Profesión y en la Universidad de hoy: contenidos, investigación, innovación y docencia at the Universidad Complutense de Madrid (Madrid, Spain) on 25-26 October 2017.

Following is the list of my scholarly works during the AY 2016-2017:

Journal Articles

- "Implicaciones de la citación en la voz del autor en el discurso académico universitario: la memoria de máster escrita en español por estudiantes españoles y filipinos", Diálogo de la lengua: revista de investigación en filología y lingüística, nº 8, pp. 16-36,
- "Revisión crítica del concepto de género en el discurso escrito y su aplicación didáctica a la enseñanza de lenguas con propósitos específicos", Estudios de Lingüística Aplicada, nº 64, pp. 203-232.
- "Una entrevista con José Plácido Ruiz Campillo sobre la gramática operativa y cognitiva y su estado en la enseñanza del español como lengua extranjera", Bellaterra Journal of Teaching & Learning Language & Literature, 10(3), pp. 90-100.

Academic Presentation

- "La comunicación lingüística en español y sus barreras en el sistema de salud de los Estados Unidos" and "Aproximación didáctica al aprendizaje de las funciones retóricas de las citas en el discurso académico universitario", in the VI Congreso Internacional de Español para Fines Específicos, 31 Mar-1 Apr. 2017, Embajada de España, Universitat van Amsterdam, Instituto Cervantes, Amsterdam, Netherlands.
- "La interculturalidad retórica en la elección de las funciones de las citas", in the Hispanic Linguistic Symposium 2016, 9 Oct. 2016, Georgetown University, Washington D.C, United States.

DAVID LEE

My research about health exhibitions will appear in the journal Qualitative Research in Healthcare and Medicine, and is under review at Health Communication. Two new courses I have developed focus on better healthcare communication. In COM 1310 Introduction to Communication in Healthcare Professions, students speak on medical topics and simulate patient-provider encounters. COM 2403 Health Communication, which made its debut this semester, does all that and more, going deeper into theories of effective public health campaigns.

CHRISTOPHER SWIFT

This past year has been eventful, both professionally and personally. I continue to conduct research in two (relatively) new areas: the staging of tragedy in the Middle Ages and the ethics of theatrical and mediatized violence. Essays on these topics have been submitted for publication and will appear shortly (one for a collection published by Bloomsbury). I also completed a major update and rewrite of my Oxford University Press bibliography on medieval Iberian theatre, which is currently under peer review. Earlier this year my review of "Playing God: The Bible on the Broadway Stage" was published in The Drama Review. In my role as Communication and Theatre course coordinator at the Humanities department, I have had the privilege of mentoring and

Map of the City of New York, Brooklyn and Part of Williamsburg, 1840 (detail)

supporting over 20 talented, smart, and spirited contingent instructors. Thank you all for setting the benchmark for commitment and excellence in teaching at CityTech. Thanks also to Anne Leonhardt of Architecture Technology for inviting me to participate in the NEH faculty development project "A Cultural History of Digital Technology". The work we did with historical mapping on Carto GIS has provided useful learning tools for my theatre history students... and may very well lead to future pedagogies and grant work. On the other side of life, my son and I organized and participated in a bike-a-thon supporting autism education. We completed a 50-mile ride on October 21, 2017.

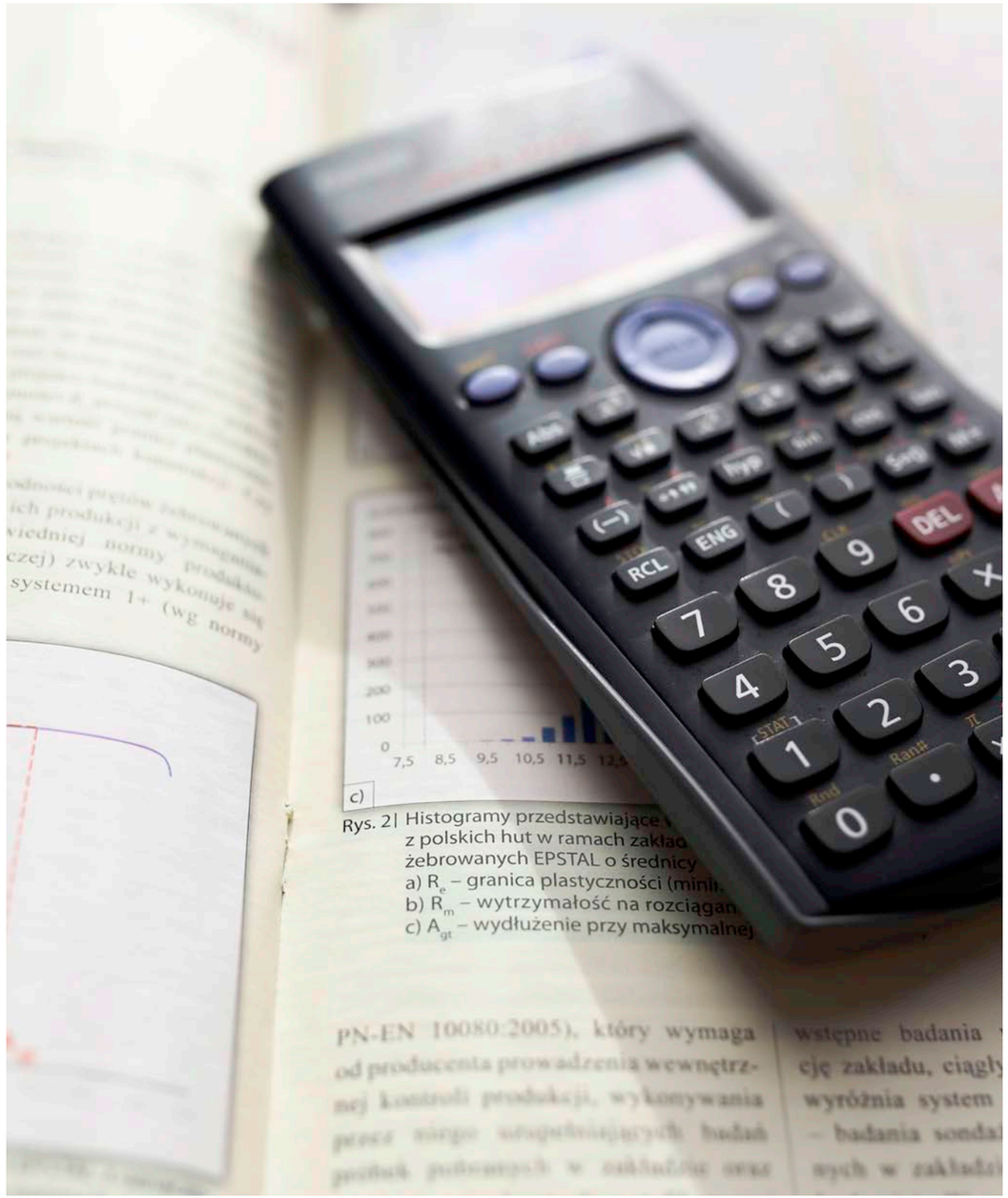
KHALID LACHHEB

My translation of the book "A Handbook of Terminology" (from French to Arabic)

was published in the Fall of 2016. Two manuscript publications are forthcoming: “Digital Anthropology,” ed. Heather Horst and Daniel Miller, (translation from English to Arabic) and “Telephony Mobile Dictionary” (a trilingual dictionary in English, French and Arabic). Professor Habiba Boumlik (LaGuardia Community College) and I were recently awarded an ILE grant for the project “Intermediate French for Culinary Arts.” The goal of the grant is to create a two-semester program of study in French for students enrolled in Hospitality Management programs at City Tech and LaGuardia. The course will acquaint Culinary Arts students with basic French language concepts and principles in the field of culinary arts.

JONATHAN DEWBERRY

Dr. Jonathan Dewberry recently performed a concert version of the acclaimed Off-Broadway and AUDELCO award-winning musical “Men of Gospel: Spirit into Sound,” a journey of the origin of the gospel tradition reaching back to African musical influences, through slavery, the Civil Rights Movement, and the contemporary gospel scene. It was conceived and directed by Ms. Elizabeth Van Dyke. The production was in Cliffwood, NJ, under the auspices of Going to the River productions.



MATHEMATICS

THE MATHEMATICS DEPARTMENT

The Mathematics Department offers an associate degree program (AS) in Computer Science, a baccalaureate degree program (BS) in applied mathematics, and a baccalaureate degree program (BS) in mathematics education. The department has 45 full-time faculty members and more than 100 part-time faculty. Welcome to the new full-time Lecturer, Professor Bruce Kan.

The past academic year has again been very productive for faculty scholarship. Mathematics faculty have also been very active in organizing and participating in department seminars, as well as (co)-organizing seminars at the CUNY Graduate Center.

We had two excellent Colloquium speakers, Professor Said Antonio Kas-Danouche Rojas (Universidad de Oriente, Venezuela) who presented “A mathematical model for a core-annular flow in pulmonary airways with an electrical field” and Professors Zaji Daugherty (City College, CUNY) who presented “Brauer algebras and their generalizations”.

We had research presentations in the Math Seminar by our colleagues: Professor Mariya Bessonov on “Probabilistic models in population dynamics”, Professor Kate Poirier on “Intersecting loops on surfaces and string topology”, and Professor Satyanand Singh on “Terms of lambda sequences over certain two element sets”.

We also had an engaging pedagogical seminar by Professor Frank Wattenberg (United States Military Academy West Point) on “Images, Mathematics, Imagination”.

The Math Club, run by Profs. Johnstone and Thiel, has been very active and exciting for many students. Several City Tech faculty presented a variety of intriguing topics, including: “Compass and Straightedge”, “Introduction to Cryptography”, “Perfect Code Cryptography”, “Cyber knives, computer programming, and mathematics all entangled”, “Probability, Paradoxes, and the Infinite”, “How to Solve the 3x3 Rubik’s Cube”, “Coming Clean about the Poincare Conjecture and Stolen Bikes”, “Turing: From Computers to Machines”. For further details about the Math Club please click here.

The Mathematics Department is very proud of Saloua Daouki, excellent Math Education graduate who has been selected as the 2017 City Tech Salutatorian. “Saloua Daouki is not a woman who accepts barriers or walks away from a challenge”; see the full article here.

With a group of mathematicians after my conference talk at Indiana University

LAURA GHEZZI

My research interests are in pure mathematics, in the field of commutative algebra. The past academic year has been very exciting for my work. I published the paper "Sally Modules and Reduction Numbers of Ideals" in Nagoya Mathematical Journal, a top peer reviewed journal in my discipline. I presented new results on "Invariants of Cohen-Macaulay rings associated to their canonical ideals" at the American Mathematical Society conference at Indiana University in Bloomington in April 2017. I also co-organized the Special Session "Commutative Algebra" at the American Mathematical Society meeting hosted by Hunter College, CUNY, in May 2017. The session featured 15 national and international renowned speakers. I continued organizing the Commutative Algebra and Algebraic Geometry Seminar at the CUNY Graduate Center, where I also presented a talk.

A major commitment in the past two years has been serving as the Faculty Development Seminar Co-Director of the Title V institutional grant Opening Gateways to Completion: Open Digital Pedagogies for Student Success in STEM (U.S. Dept. of Education, $3.2M 2015-2020). Each year I co-organize an intensive seminar series that engages Mathematics Faculty Fellows in incorporating active learning strategies and open digital pedagogies in gateway mathematics courses for STEM majors.

Please visit: Opening Gateways Seminar site (which includes the Open Educational Resources developed by the first cohort of Fellows 2016-2017).

JANET LIOU-MARK

Janet Liou-Mark (Mathematics) was awarded the Region 1 (Northeast) NSCS Chapter Co-Advisor of the Year (May 2017) along with D. Samaroo (Chemistry) and the 2017 Best of New York Award, and she was given an honorary membership award to the National Society of Leadership and Success, Sigma Alpha Pi chapter (December 2016). She is the co-PI on several grants, and her professional scholarship revolves around the dissemination of the projects. As the co-PI of a National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE) GEOPATH grant (#1540721), Janet Liou-Mark had co-presented with the project team members (R. Blake, H. Norouzi, V. Vladutescu, and L. Yuen-Lau) the project's outcomes in training non-geoscience STEM students to replenish the geoscience workforce at various conferences: Geological Society of America in Denver, CO (September 2016), American Geophysical Union Fall Meeting, in San Francisco, CA (December 2016), 97th Annual Meeting of the American Meteorological Society (AMS), 26th Symposium on Education in Seattle, WA (January 2017), and Earth Educators' Rendezvous in Albuquerque, NM (July 2017).

As the co-PI on a NSF Research Experiences for Undergraduates (REU) grant (#1560050), Janet Liou-Mark had co-authored a chapter "Authenticating Interdisciplinary Learning through a Geoscience Undergraduate Research Experience" with R. Blake in R. D. Lansiquot (Ed.) Interdisciplinary pedagogy for STEM: A collaborative case study. She had co-presented (with R. Blake) two oral presentations at the NSF REU PI meeting in Boulder, CO (September 2016). A poster presentation on the recruitment and retention strategies of the REU program was present with R. Blake, H. Norouzi, L. Yuen-Lau, and M. Ikramova at the American Geophysical Union Fall Meeting in San Francisco, CA (December 2016), an oral presentation on diversifying the geosciences through a research program was presented at the 97th Annual Meeting of the AMS, 26th Symposium on Education in Seattle, WA (January 2017), and the role of mentorship in an REU program at the Geoscience and Remote Sensing Symposium in Fort Worth, TX (July 2017).

As the co-PI on a Department of Education (DOE) Minority Science and Engineering Improvement Program (MSEIP), Janet Liou-Mark co-presented with the project team (S. Han, P. Brown, B. Kostadinov, and J. Thiel Han, E. Small, and S. Zeng) at the 5th ACM-W New York Celebration of Women in Computing in Henrietta, NY (April 2017) and at the DOE MSEIP PI meeting in Washington, DC (July 2017). She also presented with two students and J. Thiel, B. Kostadinov, L. Zhou, and H. Carley at the 6th Annual Meeting of the Peer-Led Team Learning International Society at Northeastern Illinois University, Chicago, IL (June 2017). As the Peer-Led Team Learning (PLTL) Director for Mathematics at City Tech, Janet Liou-Mark co-presented the PLTL project with two students, M. Villatoro, and D. Samaroo at the 36th Annual Conference on The First-Year Experience in Atlanta, GA (February 2017).

She also co-presented with seven students at the annual meeting of the Metropolitan New York Section of the Mathematical Association of America (MAA) at Hostos Community

6th Annual Meeting of the Peer-Led Team Learning International Society at Northeastern Illinois University

Distinguished Speaker at Oxford University Seminar, UK

College, Bronx, NY (April 2017). She made two presentations on a five-year overview of the PLTL program with ten students at the 6th Annual Meeting of the Peer-Led Team Learning International Society. Furthermore, Janet Liou-Mark (with D. Samaroo and M. Villatoro) was invited to present the PLTL instructional model at Mercy College in Dobbs Ferry, NY (August 2017). As chair-elect for the Metropolitan New York Section of the MAA, she was on the organizing committee for the annual meeting at Hostos Community College (April 2017). Janet Liou-Mark was also a co-chair (with R. Blake) in the session on Partnerships for Promoting Diversity in Earth System Science at the 97th Annual Meeting of the AMS.

DELARAM KAHROBAEI

Professor Kahrobaei produced about 50% of scholarship report in 2016 from the mathematics department.

Professor Kahrobaei, a full professor at the Mathematics Department at City Tech and Doctoral faculty in the PhD program in Computer Science at the CUNY Graduate Center, is now also a graduate faculty at the M.S program in Data Science at the CUNY Graduate Center. She is also an adjunct professor at NYU teaching a graduate course in Computer Science Department. Her research during the academic year 2016-2017 has been supported by the generous support of Office of Naval research (ONR), as well as a PSC-CUNY, TRAD B grant from the Research Foundation of CUNY. She has also received travel grants from the PDAC for speaking and organizing a special session on Information Theory and Cryptography in Computability in Europe (CiE 2017) in University of Turku in Finland. She received an NSF travel Grant for her invited participation in International Center for Mathematical Sciences, Program on "Braids in algebra, geometry and topology", Edinburgh, Scotland, where she was asked to give some open problems on applications of braid groups in cryptography. She also has received travel grant to establish collaboration with university of Sorbonne, Pierre et Marie Curie to develop a research grant with the Cryptography and Algebra group POLYSys6 there. Institut Henri Poincare in Paris one of the top Mathematics Institute in France, has provided him with a travel grant from NSF to participate in the Program on Analysis of Quantum Information Theory.

Dr. Kahrobaei's two patents have been accepted by United States Patent and Trademark Office. These patents are related to information security: Delegation of computation to clouds and the other on the most known efficient algorithm for computing over big encrypted data (a.k.a. Fully Homomorphic Encryption) using rings.

She has published 9 papers during 2016-2017: (1 Edited Book, 4 Journal papers, 4 Refereed Conference Proceedings). This includes papers in Proceedings of 9th Association of Computing Machinery Cloud Computing Security Workshop (CCSW 2017), Institute of Electrical and Electronics Engineers, IEEE Conference on Communications and Network Security IEEE CNS 2017, the Third IEEE Workshop on Security and Privacy in the Cloud (SPC) (2017), Journal of Pure and Applied Algebra published by Elsevier, IEEE Engineering in Medicine and Biology Society conference (EMBC'17), Experimental Mathematics published by Taylor & Francis, Theoretical and Applied Informatics, an edited book on Algebra and Computer Science" published by the American Mathematical Society in Contemporary Mathematics, Groups Complexity Cryptology published by De Gruyter, as well as an Invited Paper Computability in Europe 2016 in Lecture Notes in Computer Science, Springer, LNCS 9709, Pursuit of the Universal.

These papers have been written by collaborators from academia in Spain, Israel, Harvard, University of Michigan, CCNY, GC, as well as industry from Applied Communication Sciences, and her former PhD students.

Under Professor Kahrobaei's supervision in Computer Science, 2 of her students graduated after, Dr. Gryak who got a position in University of Michigan in the Computational Medicine department, and Dr. Khodjaeva who she is now an instructor at Rutgers University.

She also supervised a postdoctoral fellow, Dr. Gribov supported by her ONR grant. Currently she is supervising the PhD thesis of two students in Computer science. They have been so successful, Ms. Horan was the only PhD student at GC Provost spotlight from CS department. She also got a summer internship from University of Sorbonne in Paris. During her visit accompanied by Professor Kahrobaei, they finished a paper submitted to a top cryptography proceedings in collaboration of top computer scientists in UPMC from the Quantum Information team as well as POLSYS group.

She was also a visiting scientist at University of Michigan. Her other student who is now a PhD candidate in Computer Science, Mr. Wood is now a visiting scientist at University of Michigan, where he will continue as a postdoc after his graduation in 2018.

Kahrobaei was an invited speaker of 3 major conferences, two in Europe: The workshop on Mealy machines at University Paris Diderot in France, 13th Computability in Europe, CiE 2017 in Finland, and also in the American Mathematics Society Eastern Session.

She gave 6 invited colloquium and seminar talks: at Distinguished Speakers at Oxford Women in Computer Science Oxford University, NASA The Goddard Information Science and Technology Colloquium Series, University of Pierre et Marie Curie in Paris, University of Salerno in Italy, Colorado State University, and Quantum and Post-quantum Computation Seminar at Initiative for Theoretical Sciences GC.

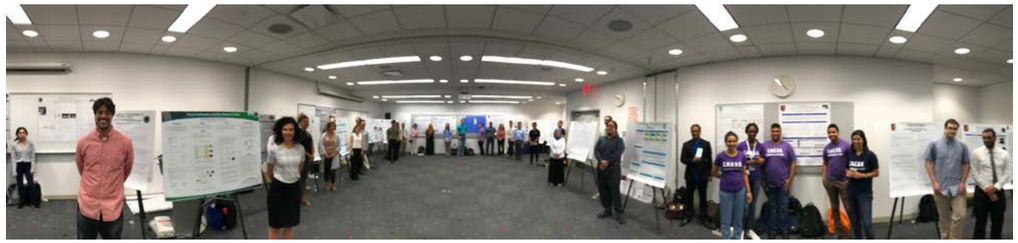
Dr. Kahrobaei organized 2 International conferences as well as 3 local: at the Mathematical Congress of the Americas 2017 (MCA2017) in Montreal, Canada, Computability in Europe 2017 in Finland, New York Multidisciplinary Symposium on Security and Privacy at New York University, American Mathematical Society Eastern meeting, 8th Manhattan Algebra Day at GC.

As service to the mathematics and computer science community she served as a panelist for: PSC CUNY Research Grants Computer Science panel, National Science Foundation panel, American Association for the Advancement of Science. She is a Member of the Advisory Committee, CUNY Hub for Innovation and Entrepreneurship at CUNY, Member of the Faculty Advisory Board Data Science @ CUNY, Member of the Research Committee at the CUNY Graduate Center since 2015, Reviewer for Mathematical Reviews at the American Mathematical Society, Computing Reviewer for The Association for Computing Machinery and Member of the Editorial Board of the International Journal of Open Problems in Computer.

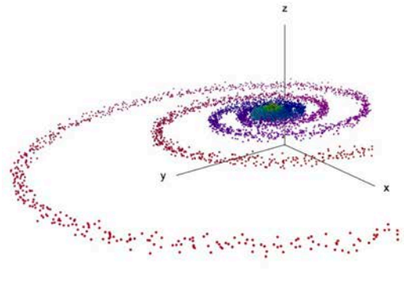
She has been the Co-founder and Co-organizer of Quantum and Post-quantum Computation Seminar, New York Applied Algebra Colloquium. She is co-organizer of the Algebra-Cryptography Seminar and also the main faculty organizer of the Mathematical Aspects of Cryptography Student Seminar. All the these seminar run at CUNY Graduate Center.

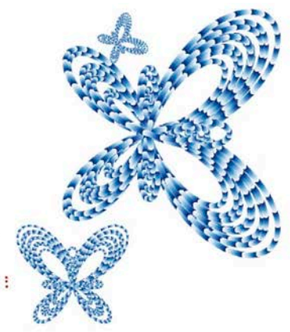
BOYAN KOSTADINOV

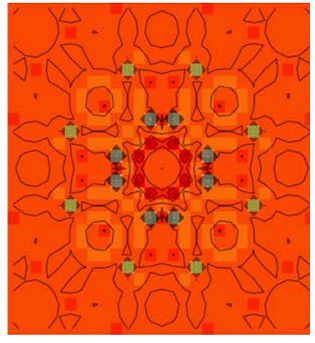
In summer 2017, I coordinated the Minority Science and Engineering Improvement Program (MSEIP) research program. We recruited 28 students and 17 faculty from 8 Departments, who served as faculty mentors. All students showcased their faculty-mentored research projects at the joint NYCCT/BMCC Poster Session held at the Fiterman Conference Center at BMCC on August 14. I also served as a faculty mentor for two students: Jeffrey Tumminia and Ricky Hardiyanto, who were each awarded Travel Grants from the Mathematical Association of America (MAA) to present their research projects at the national MAA MathFest in Chicago, July 26-29, 2017. In addition, five other City Tech students who participated in the MSEIP research program were awarded the MAA Travel Grant to present



The NYCCT/BMCC Poster Session at Fiterman Conference Center, BMCC, August 14, 2017.







Selected visualization projects, Code in R, May 26 - June 1, 2017.

at the MAA MathFest. They were mentored by Prof. Janet Liou-Mark, Prof. Ariane Masuda, and Prof. Johann Thiel, from the Mathematics Department. I coordinated the conference travel for all 10 students from City Tech who attended and presented at the MAA MathFest in Chicago.

I also attended the MathFest and gave two presentations: “The Data Science of Fitting a Dinosaur” and “From a High-Dimensional Random Polygon to an Ellipse: A Fourier Analysis of Iterated Circular Convolutions”. The MSEIP summer research program was funded with $42,000 from the budget of the 3-year, $750,000 collaborative MSEIP grant from the U.S. Department of Education, which Prof. Kenneth Parker and I have been implementing over the last three years on the City Tech side, alongside a team of BMCC faculty. I want to acknowledge the support offered by Dean Justin Vazquez-Poritz who coordinated the printing of the City Tech student posters for the joint poster session, as well as the help offered by Prof. Hamidreza Norouzi, Director of Undergraduate Research, with recruiting faculty and students for the MSEIP summer research program.

I also co-organized the Code in R summer program, which attracted 30 students - 25 from City Tech and 5 from BMCC, representing 10 majors. This program was supported by another MSEIP Grant, with PI Sandie Han, Co-PI: Janet Liou-Mark, Johann Thiel and myself. The students seemed very excited to get a hands-on experience in computational thinking by implementing in R a number of visualization projects. From the students who participated in the competition part of the program, we selected 3 students to present their projects at the MAA MathFest in Chicago. All of them received the MAA Travel Grant.

SATYANAND SINGH

This past academic year I have made significant contributions to the mathematics community as a reviewer for the American Mathematical Society. I also reviewed PSC-CUNY Grants for the Traditional A and B awards on the Mathematics Panel. I serve as a Trustee of the Belle Zeller Scholarship fund, which awards merit-based scholarships to talented CUNY students.

I have mentored several City Tech students (who were funded by the emerging scholars program and in the summer by the MSEIP Grant) and a high school prodigy who presented at the Mathematical Association of America

annual meeting. I also work on several grants; in particular, I supervise the mathematics component of the Perkins grant that is highly successful and provide an invaluable source of help to our students in mathematics courses. I am a Co-Pi of a National Endowment of the Humanities grant, and I am working with several colleagues across disciplines to craft an interdisciplinary course as one of our many achievements. I actively do research and presented my work at several conferences, most recently at MathFest 2017 in Chicago. I have also published with collaborators in prestigious journals. My teaching encompasses a wide range of courses and my dynamic and successful student centric approach merited me the distinguished teaching award from the Mathematical Association of America based on students and colleagues recommendations. Last but not least, I received the fifteen years service award at President Russell K. Hotzler's annual award reception.

HUSEYIN YUCE

The recent emphasis of my work has modeling and outcomes research, which is used to answer questions related to healthcare. In collaboration, I have published 3 research articles in peer-reviewed journals, analyzing health care data, in 2016-2017 academic year and submitted 5 research articles:

1. Black, M.C., Fillit, H., Xie, L., Hu, X., Kariburyo, F.M., Ambegaonkar, B.M., Baser, O., Yuce, H., Khandker, R.K., Economic Burden, Mortality, and Institutionalization among Patients Newly Diagnosed with Alzheimer's Disease, in press, Journal of Alzheimer's Disease, 12-Jun-2017

2. Shrestha, S., Miao, R., Wang, L., Chao, J., Yuce, H., Wei, W., Burden of Atopic Dermatitis in the United States: Analysis of Healthcare Claims Data in the Commercial, Medicare, and Medi-Cal Databases, Advances in Therapy (2017), 34:1989-2006.

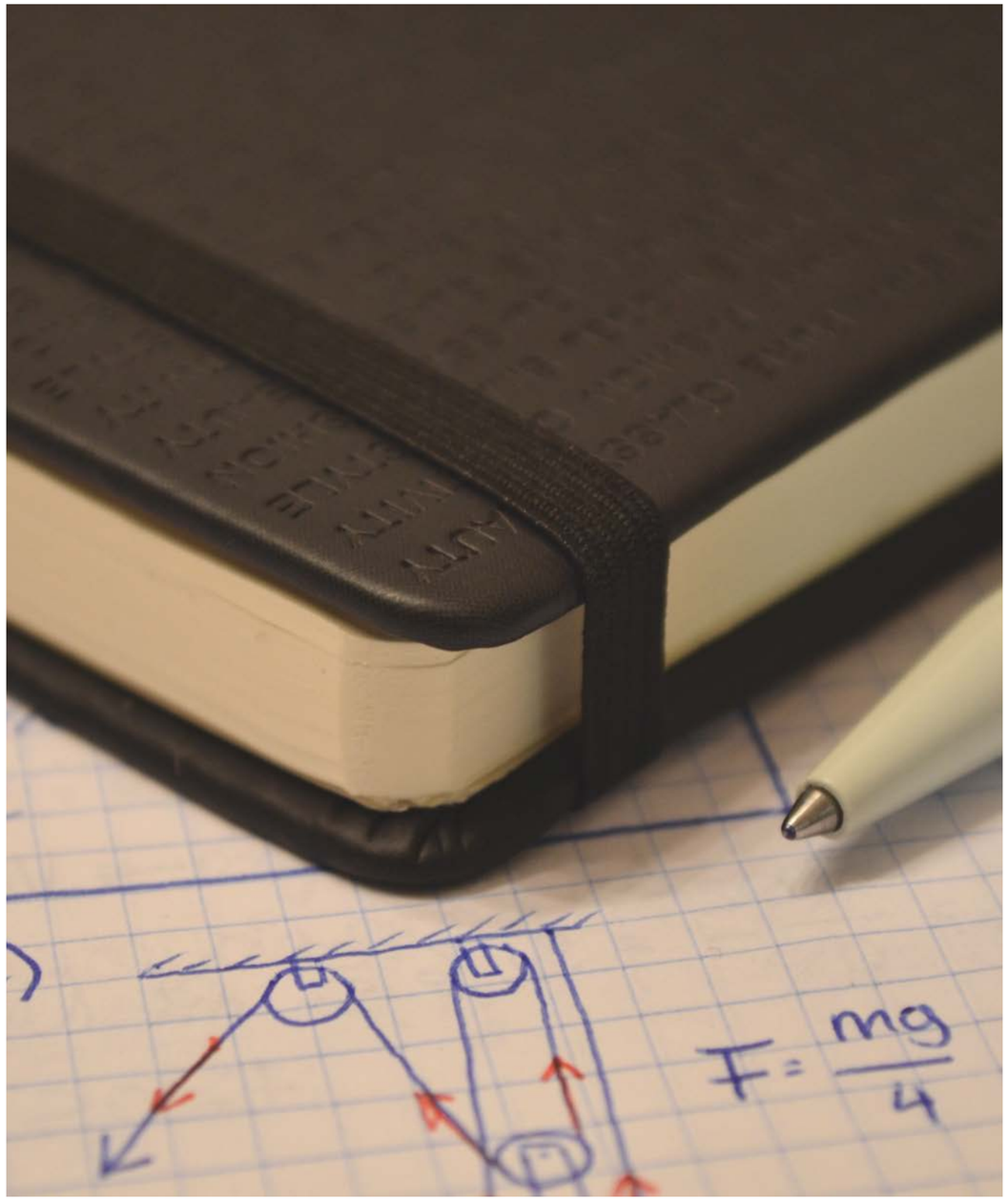
3. Pesa, J. A., Doshi, D., Wang, L., Yuce, H., Baser, O., Health care resource utilization and costs of California Medicaid patients with schizophrenia treated with paliperi done palmitate once monthly or atypical oral antipsychotic treatment, Current Medical Research and Opinion (2017), 33:4, 723-731.

I have presented these papers in international conferences in Boston, MA; Vienna, Austria; Washington, DC. I participated and presented in the event "Future of Applied Math at CUNY". I have attended 29th International Conference on Technology in Collegiate Mathematics, Chicago, IL. I have refereed six research articles. I serve as a member of editorial board of Journal of Health Economics and Outcomes Research. I have been interviewed and featured in 2016 Annual Report of RF-CUNY for the project that was funded by SIMR, Inc. (Amount $60K). I have been invited and honored by the Chancellor in "Salute to Scholars" events for my funded project in Fall 2016. I have received a research grant (amount $15K) from SIMR, Inc. (2016-2020). I serve as a coordinator of Applied Mathematics Program and I have written the self-study of the program in Spring 2017.

NEW FACULTY

The Department of Mathematics welcomed full-time Lecturer, Professor Bruce Kan.

BRUCE KAN



PHYSICS

THE PHYSICS DEPARTMENT

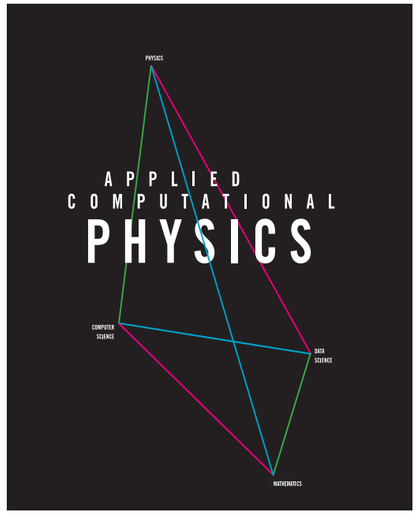
During the academic year 2016-2017 the members of the Physics Department continued their research activities in the fields of Astrophysics, Condensed Matter, High Energy Physics, and Photonics. Collectively they contributed to the publication of more than 30 papers published in top peer reviewed journals. The results of their work were presented at numerous international and national conferences and invited seminars in different universities and colleges.

The Center for Theoretical Physics (CTP) hosted 15 seminars on subjects ranging from solid-state physics to particle physics and dark matter. Seminars were presented by scientists from several institutions in the US and abroad who visited the Physics Department in the Fall 2016 and Spring 2017 semesters, in addition to many distinguished speaker from nearby locations. A full list of seminars, together with the presentations can be found on the website of the Center for Theoretical Physics at City Tech.

The Physics Department significantly expanded the computational power of the existing CTP High-Performance Computing Cluster and complemented it by purchasing new software.

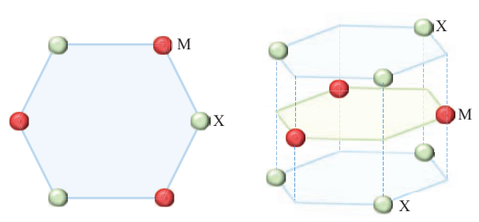
The CTP Computer Cluster represents a major tool in science and undergraduate education at the College. It has also allowed the CTP to significantly enhance its collaborations with leading universities in the United States and worldwide.

The Center for Theoretical Physics and the Institute For Interstellar Studies have partnered to bring together some of the best minds in the fields of physics to address some of the fundamental problems associated with becoming an interstellar capable civilization. June 13-15, 2017, the Physics department and the Center for Theoretical Physics organized and hosted at our College the International Workshop “Foundations of Interstellar Studies”.

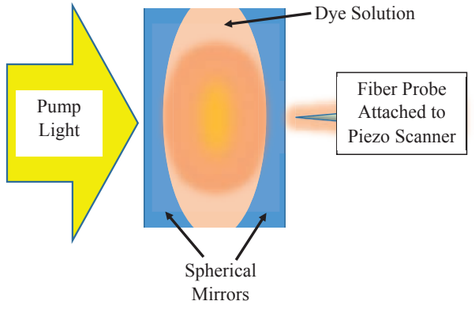


Seven faculty of the Physics Department are members of the Physics program at the Graduate Center of CUNY. Mirko Amiko, a graduate students from the CUNY Graduate Center, accepted to join the team of graduate students of the Physics Department, already consisting of Matthew Brunetti and Ray D. Sameshima. All three graduate students are currently teaching laboratory sessions and doing research under the mentoring of faculty members in the Department.

In the Spring semester of 2017, the Bachelor of Science in Applied Computational Physics (ACP) was finally approved by CUNY and became part of the offerings of our College starting with the Fall of this year. This represents the culmination of several years of collegial efforts from the Physics Department. The ACP program is a synthesis of applied physics and high-performance computing, which is in high demand, and does not currently exist elsewhere at CUNY. The curriculum can be divided into the following four components: A solid foundation in physics; Advanced Mathematics; A foundation in Modern Programming Languages; Computational and numerical techniques. As students advance through the program, computational techniques are used to study everything from particle collisions at the Large Hadron Collider and modeling processes in nanostructures to



The structure of a TMDC monolayer.



Scheme of possible experiment for study of the local density of microcavity photons condensate. A fiber-based detector is located near the mirrors and can be scanned along the surface to register the spatial distribution of photons, escaping the microcavity.

astrophysical systems involving super-massive objects such as black holes.

OLEG BERMAN

Professor Oleg Berman's research interests are mostly in condensed matter theory, including quantum nanophysics, light-matter interaction in nanostructures; many-body interactions and phase transitions in low-dimensional structures including Bose-Einstein condensation and superfluidity of excitons in polaritons in quantum wells, graphene, TMDC, and phosphorene layers. He is also interested in the studies of plasmonics and photonic crystals based on graphene. Besides, recently he started to work on quantum entanglement of superconducting qubits.

Publications:

1. O. L. Berman and R. Ya. Kezerashvili, "High-temperature superfluidity of the two-component Bose gas in a transition metal dichalcogenide bilayer," Physical Review B 93, 245410 (2016).

2. O. L. Berman, R. Ya. Kezerashvili, and Yu. E. Lozovik, " Quantum entanglement for two qubits in a nonstationary cavity",Physical Review A 94, 052308 (2016).

3. O. L. Berman, R. Ya. Kezerashvili, Yu. E. Lozovik, and K. Ziegler, " Sensitive linear response of an electron-hole superfluid in a periodic potential", Physica E 92, 1 (2017).

4. O. L. Berman, G. Gumbs, and R. Ya. Kezerashvili, " Bose-Einstein condensation and superfluidity of dipolar excitons in a phosphorene double layer", Physical Review B 96, 014505 (2017).

5. O. L. Berman, R. Ya. Kezerashvili, and Yu. E. Lozovik, " On Bose–Einstein condensation and superfluidity of trapped photons with coordinate-dependent mass and interactions", J. Opt. Soc. Am. B 34, 1649-1658 (2017).

Presentations:

1. O. L. Berman and R. Ya. Kezerashvili, Towards high-temperature superfluidity of excitons in TMDC , International Conference on Quantum Fluids and Solids 2016 (QFS2016), Prague, Czech Republic, August 10-16, 2016.

2. O. L. Berman, R.Ya. Kezerahsvili, and Yu. E. Lozovik, Quantum entanglement and dynamical Lamb effect for two superconducting vvqubits in a nonstationary cavity, APS March Meeting, March 13-17, New Oleans, Louisiana, USA, 2017,

3. O. L. Berman and R. Ya. Kezerashvili, Superfluidity of dipolar excitons in different TMDC double layers, Invited Seminar at Army Research Laboratory, July 12, Adelphi, MD, USA.

Grants:

A part of a team, which received NSF Grant Supplement to the NSF Grant HRD-1345219.

GREGORY MATLOFF

Gregory Matloff (Physics) My research during 2016 and 2017 has proceeded on three fronts. These are discussed sequentially:

First, I have continued my research on interstellar propulsion, As well as the conference presentations and peer-reviewed journal papers, I am an Advisor to Yuri Milner's Breakthrough Initiative Project Starshot. Here're my papers and presentations:

Prof. Matloff presenting a lecture at an international conference

- "On-Board Power for Interstellar Generation Ships: Application of Cassenti's Toroidal Ion Scoop (Technical Note), JBIS, Vol. 70, 208-209 (2017).

- "The Occulus Project: Gravitational Lensing, Earth-Like Exoplanets, and Solar Sailing", JBIS, Vol. 69, 439-449 (2016). Co-authors: Murzionak, P., Welch, C.

- "Effects of Enhanced Graphene Reflection on Sun-Launched Starwisp Probes", presented at 68th IAC, Adelaide Australia, Sept. 25-29, 2017.

- "The Motivation and Frequency of Interstellar Migrations: A Possible Answer to Fermi's Paradox", presented at 10th IAA Symposium on Future of Space Exploration: Towards Moon Village and Beyond", Turin, Italy, June 27-29, 2017.

- "Thermal Limitations of Starwisp Type Probes", Presented at 4th International Solar Sail Symposium, Kyoto, Japan, 17-20 January 2017.

I also served on a panel at the October 2017 Tennessee Valley Interstellar Workshop in Huntsville, AL.

(2) Next, I have continued my studies of Observational Astro-Panpsychism with two peer-reviewed papers"

- "Stellar Consciousness: Can Panpsychism Emerge as an Observational Science?", EdgeScience, No. 29, 15-20 (March 2017).

- "Can Panpsychism Become an Observational Science," Journal of Consciousness

- Exploration and Research, Vol. 7, 524-543 (2016).

(3) Finally, I have entered the debate regarding the possible existence of alien megastructures encircling other stars with a peer-reviewed paper:

- "A Rationale for Alien Megastructures", JBIS, Vol. 70, 210-212 (2017).

BORIS GELMAN

I spent 2016-2017 on sabbatical leave visiting the University of Maryland, College Park and Cambridge University, UK. In Maryland, I collaborated with members of the Maryland Center for Fundamental Physics on a number of problems in nuclear and hadronic physics, including the description of recently discovered exotic hadrons. One of the "hot" (literally and figuratively) subjects of current research in nuclear and particle physics is the quark-gluon plasma (QGP) – a very hot and dense collective medium of quarks and gluons, which are the elementary constituencies of protons and neutrons. QGP existed until about a microsecond after the Big Bang when the universe was about a trillion degrees hot. It is mind-boggling that similar temperatures and densities have been achieved in the lab, albeit for only 10 septillionths of a second. QGP has been created in nuclear collisions at Brookhaven National Lab in Long Island and at

I took a selfie in front of the entrance to Isaac Newton's home, Woolsthorpe Manor. Above the door is Newton's coat of arms displaying sheep bones.

the Large Hadron Collider at CERN. With Prof. Tom Cohen and graduate student Yiming Cai, I focused on understanding how QGP transforms into hadrons and light nuclei.

The second part of my sabbatical I spent as a visiting scholar at the Department of Applied Mathematics and Theoretical Physics at Cambridge University, where I collaborated with Prof. Nicholas Manton (Cambridge) and Dr. David Foster from Bristol University on the strong force between protons and neutrons. This force arises from the dynamics of quarks and gluons inside protons and neutrons described by quantum chromodynamics (QCD). We used an approximation called large Nc QCD to describe the spin and isospin properties of the nuclear force. We modeled the scattering of neutrons and protons as collisions between hedgehog skyrmions, the topological solitons arising in the large Nc limit.

Some of the greatest scientific discoveries of the 20th century came out of Cambridge's Cavendish Laboratory, including J.J. Thomson's discovery of the electron in 1897, James Chadwick's discovery of the neutron in 1932 and Watson and Crick's determination of the double-helix structure of DNA in 1953. I was fascinated to see the original equipment used in these discoveries at the Cavendish Laboratory museum.

I also had the chance to visit Woolsthorpe Manor, the birthplace of Isaac Newton, where he conceived the idea of universal gravitation, the Royal Observatory, Greenwich, the home of the Prime Meridian which determines the zero degree longitude, and the Herschel Museum of Astronomy where in 1781 William Herschel and his sister Caroline discovered the planet Uranus.

LUFENG LENG

In the fall of 2016 my collaboration with OFS Labs resulted in a publication [1] in Optics Express. The topic was unrepeatered transmission over a 500-km optical fiber link, for which I investigated and optimized the evolution of the distributed Raman gain from 2nd-order pumping to achieve the maximal optical signal-to-noise ratio. In the spring of 2017, I gave an invited talk [2] on the impact of multiple-path interference on the coherent optical transmissions at the 24th Wireless and Optical Communication Conference. I also served as a technical committee member of the conference. During the same period, I received a PSC-CUNY grant [3]. The proposed research was to assess the nonlinearity interference noise in Raman amplified fiber links.

[1] B. Zhu, P. I. Borel, T. Geisler, R. Jensen, L. Leng, X. Jiang, D. W. Peckham, R. L. Lingle Jr., D. Vaidya, M. F. Yan, P. W. Wisk, and D. J. Digiovanni, "800Gb/s (8x128Gb/s) unrepeatered transmission over 515-km large-area ultralow-loss fiber using 2nd-order Raman pumping," Optics Express, Vol. 24, No. 22, pp. 25291- 25297, October 2016.

[2] L. Leng, "Impact of multiple-path interference on the performance of coherent transmission systems employing distributed Raman amplification," in Proceedings of the Wireless and Optical Communication Conference (WOCC), New Jersey, USA, May 7-8, 2017.

[3] PSC-CUNY Award #60100-00 48, "Analytical Estimation and Experimental Validation of Nonlinear Interference in Distributed Raman Amplification," 7/2017-6/2018.

VIVIANA ACQUAVIVA

This year I came back full time after having a daughter, Clara. I enjoyed mentoring students

Team C.H.E.S.S. presenting at Borough of Manhattan Community College.

Picture from the Feliks Gross Award Ceremony.

for the Honors Research (Harpreet Gaur), and the MSEIP grant (Hashir Qureshi and Joshua Perez), who are among the founding members of the C.H.E.S.S. team (photo 1). I became an associate member at the new Computational Center for Astrophysics on the Flatiron building, and I enjoy spending time there and interacting with many researchers in my field. I was also appointed a Harlow Shapley lecturer and gave my first HS cosmology lecture+workshop at the College of Southern Nevada. I gave invited seminars in Astrophysics at University of North Carolina and City College, and on Data Science and Machine Learning at the Statistical and Applied Mathematical Sciences Institute in North Carolina and at the International School for Advanced Studies (SISSA/ISAS) in Italy. A paper long in the making where I am second author was published, yay! And finally, I was awarded the Feliks Gross award for outstanding scholarship by the CUNY Academy (photo 2, also featuring Clara, who started screaming about one minute into my presentation).

DARYA KRYM

During the past year, I reconnected with old friends and colleagues, which inspired involvement in a couple of different projects. One of these projects is a calculation of entanglement entropy using the gauge/gravity duality. The direction is one I've been pursuing for a long time. Amusingly, one of the collaborators is someone I hadn't had a chance to collaborate with despite having met a decade ago, all the way back during a summer school during our grad school days. The entanglement entropy concept is related indirectly to the black hole information paradox, a long time interest, that I have no had a chance to work on. This became a topic of exploration with another colleague, who has been a friend since undergraduate days.

I have also been trying to encourage scientific collaboration among my students. I tried assigning them study partners to do homework with and study for exams. (Students were allowed to choose their own partners if they had a preference.) Though many students did not take advantage of this, some were enthusiastic. I am still trying to figure out whether this is having any positive effect on learning outcomes.

RAY D. SAMESHIMA

I am a fourth year graduate student CUNY graduate center, working in the Physics Department at City Tech under the supervision of Prof. Andrea Ferroglia and Prof. Giovanni Ossola. I have been interested in high energy physics, especially the mathematical structures of scattering amplitude in quantum field theories.

During 2016-2017 academic I published one paper: A. Broggio, A. Ferroglia, G. Ossola, B. D. Pecjak, and R. D. Sameshima, "Associated production of a top pair and a Z boson at the LHC to NNLL accuracy", JHEP 1704 (2017) 105 (2017-04-19). This paper discusses precise predictions for the production of top quarks in association with a Z vector boson at the Large Hadron Collider experiments up to next-to-next-to-leading logarithmic accuracy.

Aside from working at the paper, during the academic year I have studied algebraic geometry and functional reconstruction with finite fields within the context of scattering amplitudes. I developed trial codes in the Haskell language, for example a module of univariate functional reconstruction which can treat univariate polynomials and rational functions. Highlights of these results have been presented in a dedicated poster at the City Tech's 14th Annual Poster Session in November 2016, where I described the basic steps of integrand reduction of amplitudes and functional reconstruction techniques with Haskell working codes.

In January 2017, I gave the presentation "Integrand Reduction Reloaded: Algebraic Geometry and Finite Fields" at the APS April meeting 2017 at Washington, DC. Within this talk, I presented the multivariate polynomial division in algebraic geometry as a key tool for integrand reduction of amplitudes, and the algorithm for functional reconstruction with finite fields.

In February 2017, I attended "AMPLITUDES-SINGULAR meeting" at the

University of Padova, Italy, where people form the Singular group (a powerful computer algebra system for polynomial manipulation) and high energy physicists in our group met and discussed common research goals and perspectives.

GIOVANNI OSSOLA

During the academic year 2016-17, Prof. Ossola continued his research efforts related with theoretical predictions for high-energy particle collisions. The project involves two complementary directions: on the one hand, the development of new ideas and techniques for the evaluation of high-energy scattering amplitudes, on the other hand the application of most advanced available technical tools to actual calculations of interest for the experimental collaborations at particle colliders.

Concerning the first aspect, Prof. Ossola worked at further developments of the integrand-level approach to the reduction of scattering amplitudes, which has been the primary topic of his research for the past years, with a particular focus on its extension to multi-loop amplitudes. On this matter, in October 2016, he presented a review talk on the subject at the High Energy Physics seminar at City College of New York, titled "Automated Computation of Scattering Amplitudes: from Integrand Reduction to Monte Carlo tools".

A new important calculation, related to the production of top-quark pairs in conjunction with a Z boson at the Large Hadron Collider (LHC), was completed and published earlier this year:

"Associated production of a top pair and a Z boson at the LHC to NNLL accuracy", A. Broggio, A. Ferroglia, G. Ossola, B.D. Pecjak, and R.D. Sameshima, JHEP1704, 105 (2017).

In this paper, by means of an in-house Monte Carlo code, we evaluate the resummation formula for the total cross section and several differential distributions at a center-of-mass energy of 13 TeV for the associated production of a top pair and a Z boson, to be compared with the data recorded and analyzed by the experimental collaborations at the LHC.

These results were presented by Prof. Ossola in July 2017 at the European Physical Society Conference on High Energy Physics (EPS-HEP) Venezia, July 5-12, 2017 as part of his talk "Recent developments in the computation of scattering amplitudes beyond one loop".

ANDREA FERROGLIA

During the academic year 2016-17, Prof. Ferroglia continued his research program in theoretical high-energy particle physics. In particular, Ferroglia's work focusses on the production of top quarks pair at the Large Hadron Collider (LHC) operating at CERN in Geneva Switzerland. The aim of Ferroglia's work is to obtain precise predictions for observables measured at the LHC by using the Standard Model (SM) of particle physics. The SM model is the quantum field theory which describes interactions among elementary particles.

Professor Ferroglia published three papers in refereed journals. In the first paper "Associated production of a top pair and a W boson at next-to-next-to-leading logarithmic accuracy," JHEP1609, 089 (2016) (in collaboration with A. Broggio, G. Ossola, and B. D. Pecjak), the authors obtained predictions for the associated production of a top pair and a W boson. In the second paper, "NNLL resummation for the associated production of a top pair and a Higgs boson at the LHC," JHEP1702, 126 (2017) (in collaboration with A. Broggio, B. D. Pecjak, and L. L. Yang), the important case of the associated production of a top pair and a Higgs boson is considered. This process was only recently observed at the LHC, and it has a cross section compatible with the one predicted in the paper. Finally, the last paper, "Associated production of a top pair and a Z boson at the LHC to NNLL accuracy", JHEP1704, 105 (2017) (in collaboration with A. Broggio, G. Ossola, B.D. Pecjak, and R.D. Sameshima) considers the associated production of a top-antitop pair and a Z boson.

These results were presented by Ferroglia in January 2017 at an invited seminar at the Universita Statale in Milan (Italy) and in May 2017 at the conference Loopfest XVI at Argonne National Laboratory (IL). Furthermore, in January 2017 Ferroglia gave two invited lectures on quantum field theory topics at the New York University Campus in Abu Dhabi (UAE).

NEW FACULTY

The Department of Physics welcomed a graduate student from the CUNY Graduate Center.

MIRKO AMICO

SOCIAL SCIENCE

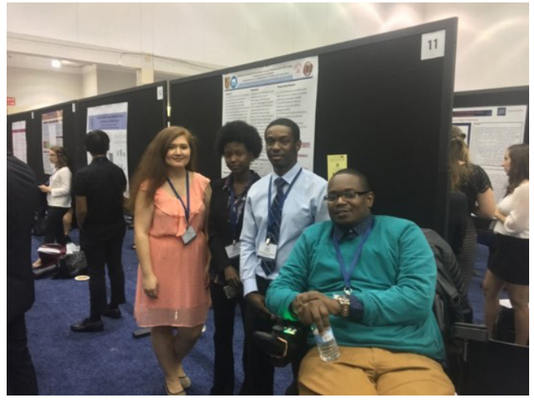
THE SOCIAL SCIENCE DEPARTMENT

Over the past year, the faculty of the Social Science Department have continued to be active in their respective academic fields by publishing a number of books, journal articles and book chapters. They have also shared their research with colleagues at numerous domestic and international conferences in the fields housed with the department: Anthropology, Economics, Geography, Government/Political Science, History, Philosophy, Psychology, and Sociology.

Beyond their contributions to scholarship, the faculty of the Department of Social Science have devoted themselves to excellence in teaching by creating a number of new courses and offering an ever increasing number of interdisciplinary classes. The department is also in the process of creating a new baccalaureate program in Data Analytics. These offerings continue to further the Department of Social Science mission, which is to stimulate intellectual curiosity and critical thinking skills by studying the social scientist's view of problems which confront the individual, the community, the nation and the world.

AMANDA ALMOND

Amanda Lee Almond, Ph.D. (Psychology) During the 2016-2017 academic school year Professor Almond published research findings and a book chapter, both on the topic of microaggression. "Measuring racial micoraggression in medical practice" was published in the peer-reviewed, international health journal, Ethnicity & Health in August, and is an original research article, designed to measure and describe racial microaggressions experienced by people of color from medical professionals. The second published work was an invited book chapter contribution to the 5th edition of Lectures on the Psychology of Women, published by Waveland Press. Her



chapter titled "'What are you?" Defining and coping with microaggression', was written to provide an understanding of microaggression for undergraduate readers taking a Psychology of Women's course, and to promote self-care and resilience in the face of these types of stressors.

She continues to play a role as an elected APA Division 38 (Health Psychology) Research Council Member, disseminating current health psychology research to Division list-servs as part of this role, and most recently, serving as Chair to the Council-sponsored Symposium at the 125th American Psychological Association convention in Washington, D.C., August 2017. The panel of research included her own research on self-care and women in psychology, done alongside her colleagues from the Association for Women in Psychology and City Tech undergraduate students, and the noted scholar on the topic, Dr. Jeffrey Barnett, served as the discussant. In addition to coordinating this research presentation, she also traveled with her NIH BRIDGES to Baccalaureate Scholars and Emerging Scholars participants to present their research findings at the Association for Psychological Science annual convention in Boston, MA. There they presented findings on self-care and self-compassion among women in psychology, in the face of broader cultural microaggressions, pertaining not only to race but also gender, age, disability, and sexual orientation.

Professors Almond's Interdisciplinary Health Psychology course formed the City Tech Inaugural Active Minds chapter, part of a

national collegiate organization dedicated to reducing the stigma around mental illness and openly talking about health. In the Spring the club took part in the college's Wellness Fair, promoting Text-Talk-Act; a text-driven 'hotline' where students come together as a group to talk about mental health using the prompts, questions, and feedback provided via text. They also screened the film "Men Get Depressed" to raise awareness about depression and suicide among young men. Tabling events around finals-week were student led and offered self-care strategies like making artwork. This Fall, Professor Almond's Interdisciplinary Health Psychology class teamed up with the American Heart Association to form team "City Tech" in the Brooklyn Heart and Stroke Walk. Together her class raised $350. Her students brought their friends and family, and together, they walked through Downtown Brooklyn, October 21st to raise awareness about heart disease and to encourage others to share their personal reasons for living a healthier lifestyle.

DIANA MINCYTE

Diana Mincyte (Social Science) has redesigned and taught SOC 3302: Environmental Sociology as an interdisciplinary course that utilizes online resources and attracts students from across the College. In terms of research, she continued her study of environmental and food issues in Eastern Europe. A special issue that she co-edited with Ulrike Plath received the Vilis Vitols best publication award from the Association for the Advancement of Baltic Studies and was published as a volume by Routledge Press. She is also joined a team of four scholars who was awarded a multi-year grant from the Lithuanian Research Foundation to study environmental care and citizenship in Lithuania. Her new research focuses on alternative food economies in North America.

As part of this project, she co-authored an article with Karin Dobernig on urban farming in the Northeastern United States that was published in the Environment and Planning A. Her other publications include an entry co-authored with Renata Blumberg on the Baltic States in the Oxford Companion to Cheese (Oxford University Press) that received the James Beard award in April, 2017. In her service, she continued focusing on curriculum development, including efforts to strengthen interdisciplinary and online curriculum, both on the department and
College levels.

GULGUN BAYAZ-OZTURK

In the past academic year, I have completed two research projects. One of the papers was an invited book chapter prepared in honor of Professor Gert G. Wagner who started the German Socio Economic Panel and served as Director from 1989 to 2011. This book chapter titled "Wife or Frau, Women Still Do Worse: A Comparison of Men and Women in the United States and Germany after Union Dissolutions in the 1990s and 2000s" is co-authored with Richard Hauser at Goethe University, Richard Burkhauser at Cornell University, and Kenneth Couch at the University of Connecticut. The Festschrift will be presented at a Conference with invited talks and will take place in Germany in January 2018. I have presented my second paper titled "Antipoverty Effects of In-Kind Transfers among Divorced or Separated Women in the United States" at the Eastern Economic Association meetings that took place in February 2017 in New York City. Recently, this paper is accepted for publication in peer-reviewed journal Poverty & Public Policy.

UNURJARGAL NYAMBUU

- Nyambuu, U., & Semmler, W. (2017.2). Emerging Markets' Resource Booms and Busts, Borrowing Risk and Regime Change. Structural Change and Economic Dynamics, 41, 29-42.

- Nyambuu, U. (2016.11). Foreign Exchange Volatility and Its Implications for Macroeconomic stability: An Empirical Study of Developing Economies. In L. Bernard & U. Nyambuu (Eds.), Dynamic modeling, empirical macroeconomics, and finance (pp. 163-182). Switzerland: Springer International Publishing.

- Bernard, L., & Nyambuu, U. (Eds.). (2016.11). Dynamic Modeling, Empirical Macroeconomics, and Finance. Switzerland: Springer International Publishing.

- Nyambuu, U., & Tapiero, C. (2016.11). Self-Serving Altruism: Globalization and Gating, Conference Proceedings, The 43rd Annual Northeast Business & Economics Association Conference, November 10-12, 2016. West Point, NY: Northeast Business & Economics Association.

SEAN MACDONALD

During the past year, the focus of my writing and publishing has been in the area interdisciplinary pedagogy, one of the areas in which my scholarship is concentrated. My work has also centered on introducing new student projects and refining existing projects in my interdisciplinary courses. I recently co-edited a book that highlights how interdisciplinary place-based learning has been incorporated into course design in different ways, with a focus on how faculty at City Tech have drawn creatively upon the urban environment. The chapter contributions also explore how virtual place-based learning in higher education can effectively engage under-represented groups in urban environments with the real world, transcending the limitations posed by geography and socio-economic reality.

My contribution to this work is a look at how interdisciplinary place-based learning has been used in my interdisciplinary course, Environmental Economics.

As a fellow with the National Endowment for the Humanities grant Making Connections: Engaging the Humanities at a College of Technology, I contributed to a collaborative narrative journal article (currently in review) which features fellows' reflections on our experiences in the design and teaching of interdisciplinary course modules. Most recently, in collaboration with the grant, A Cultural History of Digital Humanities, I created a new project for my Environmental Economics course in which students use Carto, an open source mapping project, to design maps using open data sources.

Selected publications:

R. D. Lansiquot & S. P. MacDonald (Eds.), Interdisciplinary Place-based Learning in Urban Education: Exploring Virtual Worlds. New York: Palgrave, 2017

MacDonald, S. P. (2017) From Local to Global: The Role of Interdisciplinary Place-Based Research in Teaching Environmental Economics. In R. D. Lansiquot & S. P. MacDonald (Eds.), Interdisciplinary Place-based Learning in Urban Education: Exploring Virtual Worlds (pp. 89 – 109). New York: Palgrave

Lansiquot, R. D. and MacDonald, S. P. (2017) A Model for Interdisciplinary Place-Based Learning. In R. D. Lansiquot & S. P. MacDonald (Eds.), Interdisciplinary Place-based Learning in Urban Education: Exploring Virtual Worlds (pp. 1 – 15). New York: Palgrave

MacDonald, Sean P. and Panayotakis, Costas, (2016) Insatiability and Crisis: Using Interdisciplinarity to Understand (and Denaturalize) Contemporary Humans. In R.D. Lansiquot (Ed.), Interdisciplinary Pedagogy for STEM: A Collaborative Case Study (37-55). New York: Palgrave (ISBN-13: 978-1-137-56744-4)

Bayaz-Ozturk, Gulgun and MacDonald, Sean, (2016): Intertemporal Poverty among Older Americans, Journal of Poverty, vol. 4, 331-351

TINA KAO

During the last academic year, I have continued a very productive collaboration with Neuroscientists at Columbia University. My work has focused on mapping and understanding unified mental representations in the primate brain during performance of inferential tasks. I will be presenting some of our findings at the 47th Annual Meeting of the Society for Neuroscience. I am also finalizing the manuscript of our work to be submitted.

FROM THE NEWS FORUM

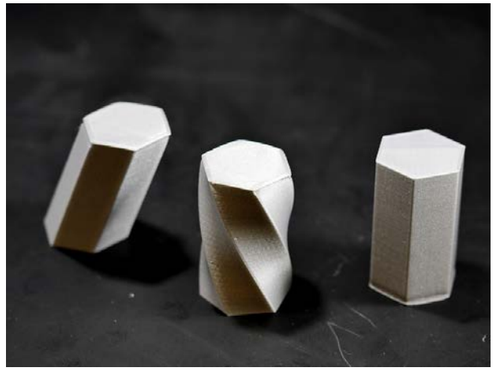
3D PRINTING IN ARTS & SCIENCES

A 3D printer was purchased through funds from MSEIP GRANT #P120A150063 awarded to the Math Department. Professor Johann Thiel has been printing physical manipulatives for use in various Math courses to illustrate approaches in Calculus to solve various problems.

Three models that illustrate the use of Shell Integration

Shell Method

These printed models illustrate the Shell Integration method for estimating the volumes of solids of revolution . Professor Thiel uses these when teaching integration in Calculus II (MAT1575).



Cavalieri's Principle

The following models illustrate Cavalieri's Principle: any two solids of equal height with identical cross-sectional areas have the same volume. In each image below, all three of the printed shapes have the same volume.

Biological Models

The Ultimaker was borrowed by Professor Seto to explore the various types of models that could be printed for Biology pedagogy.

The first model attempted was a human fibula and tibia combination. This was generated as a comparison for the second model, a fragment of the tibia from the Austolopithecus afarensis called Lucy. The file for printing was provided from eLucy as a result of re-scanning for the Nature paper Perimortem fractures in Lucy suggest mortality from fall out of tall tree (Kappelman et al., 2016). These models were created to illustrate comparative anatomy and evolution and led to the failed printing of *Hominini skulls*.

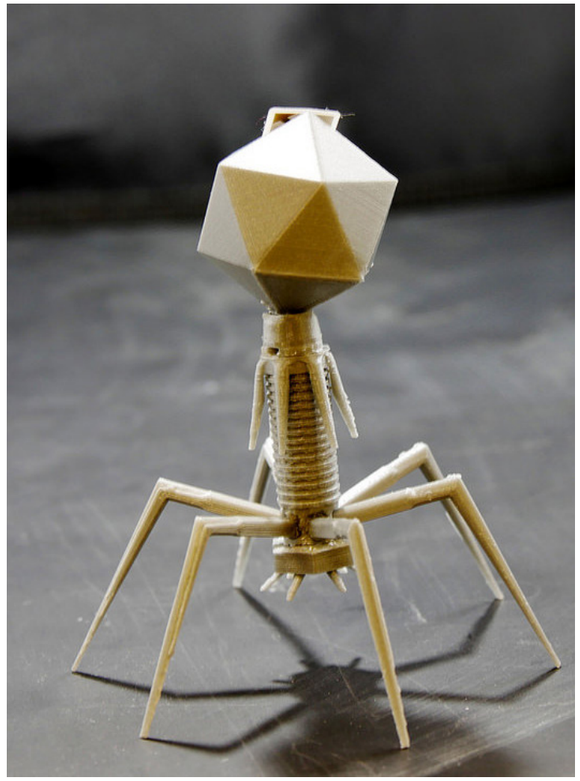
Research

Smaller models were inspired by the personal research of Professor Chris Blair, an evolutionary biologist and herpetologist. Professor Seto identified an existing model of a horned lizard and assembled 2 additional models from existing CT-scans.

If Lucy fell… (L) Human fibula and tibia. (R) Fragment of tibia from Australopithecus afarensis

Partial Hominini skulls. Homo ergaster (bottom left), Paranthropus boisei (bottom right), Pan troglodytes (top)

Desert horned lizard (Phrynosoma platyrhinos), Flat-tail horned lizard (Phrynosoma mcallii), Mexican horned lizard (Phrynosoma taurus)



Assembled model from 3D printed parts of Bacteriophage T4

Microbiology and Molecular Biology Pedagogy

A multi-part model with assembly required was generated for a T4 bacteriophage for use in Molecular and Cell Biology (BIO3620) to illustrate the parts of the virus and the pivotal role in identifying DNA as the inherited genetic material.

Near Field Communication

Since models already exist in some classes, the idea to enhance the experience of learning through integration of technology was attempted using NFC to re-direct to existing videos or OpenLab sites about the model. In the future, Professor Seto hopes to work with faculty from other departments to augment the manipulatives with more complex interactions.

References

Kappelman J, Ketcham RA, Pearce S, Todd L, Akins W, Colbert MW, Feseha M, Maisano JA, Witzel A. Perimortem fractures in Lucy suggest mortality from fall out of tall tree. Nature. 2016 Sep 22;537(7621):503-507. doi: 10.1038/nature19332. Epub 2016 Aug 29.

INSTRUCTIONS FOR NEWS FORUM

News Submissions

While the Newsletter appears only once a year, conferences, publications, travels, and performances happen throughout the year. We would like to hear about your recent activity in real time and share it with rest of the College Community.

The News Forum on the OpenLab provides for such an opportunity. You can check recent activities and achievements from your colleagues at:

https://openlab.citytech.cuny.edu/soasnews/

To have your news and pictures posted in the News Forum, please fill out the form at

https://openlab.citytech.cuny.edu/soasnews/news-form/

If the activity that you want to list involves more faculty members, you can enter multiple names separated by commas. As for the Newsletter submission, please provide the name of the Department. Indicate if it is a past or future event or a notable achievement. Enter a brief narrative that will be used as the body of the news item.

You are encouraged to accompany your news submissions with media files (up to four) that may include images, short movies, PDF files, ...

Let us know what is happening so we can share it with all of our colleagues.

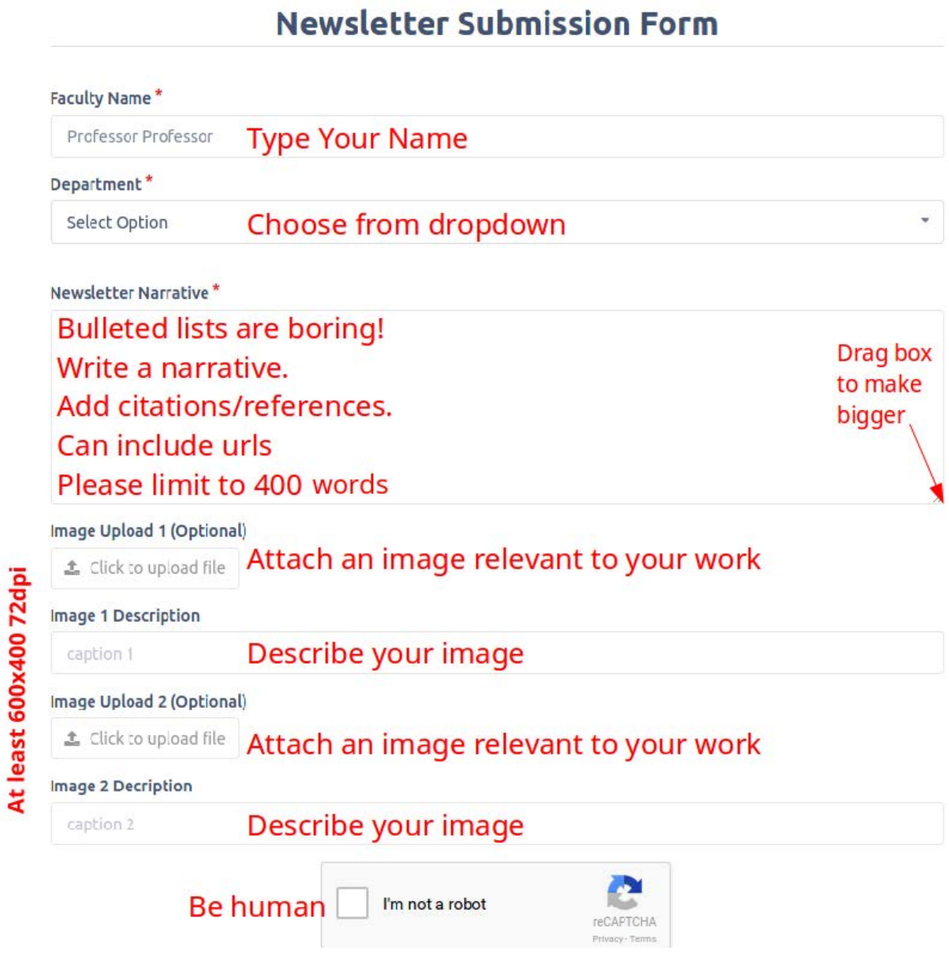
INSTRUCTIONS FOR 2017-2018 NEWSLETTER

The School of Arts and Sciences now accepts direct submissions from faculty through an on-line form. The electronic submission form will allow faculty members to describe their activities and scholarly achievements according to their personal and professional styles.

https://openlab.citytech.cuny.edu/soasnews/newsletter-submissions/

At the beginning of each Fall semester, the Grants and Research Committee will solicit submissions and make the electronic OpenLab form available. The information requested on the form includes your name, department, and a narrative description of your achievements of up to 400 words.

You may format citations according to distinct disciplinary standards and include them in the text field as bulleted points. You will have the ability to create subsections for book chapters, peer-reviewed journals, invited talks, etc. We would also like faculty to upload relevant imagery (with captions) that they wish to display to create a more vibrant newsletter.

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