March Meeting 2023 Featured Presentations
History and Culture

A Key Statistical Method, Its 'Hidden Figure' Origins and Its Possible Connections to the Hydrogen Bomb

March 6, 8:48 a.m. PST, Room 225

The Metropolis Monte Carlo method, an algorithm that allows a user to draw random samples from a probability distribution, is used in many fields that rely on statistics. In this talk, Adam Iaizzi will describe some of the historical context for the creation of this algorithm. Key to the Metropolis method's origin story is the contribution of physicist Arianna Wright Rosenbluth, one of the co-authors on the 1953 paper proposing the algorithm, who wrote its first complete computer implementation. The talk will also highlight the algorithm's possible connections to the development of the hydrogen bomb in the mid-20th century.

Tracking Memes to Understand How Information — and Misinformation — Travels Through Social Networks

March 7, 9:48 a.m. PST, Room 124

Past studies have investigated the spread of misinformation using hashtags and metadata, but the complex behavior of social information networks is difficult to characterize. Internet memes provide a natural source of data that traces the shapes of these networks. In this talk, Jedediah Kistner-Morris and Nathaniel Gabor will describe how they analyzed the way image-based internet memes spread and evolve through social networks, using machine learning image recognition techniques and analysis approaches inspired by condensed matter physics. Understanding how memes spread through social networks could offer insights into how other types of information, and misinformation, spread and evolve through various networks.

Social Outcomes of In-Person and Virtual Conferences

March 7, 10:12 a.m. PST, Room 124

The COVID-19 pandemic led to widespread adoption of virtual conferences, but differences in the social effects of virtual and in-person conferences have not been rigorously studied yet. In this talk, Emma Zajdela and colleagues will describe a model they created to investigate how scientific collaborations arise at conferences. They tested their model with data of participant interactions from several in-person and virtual meetings. The researchers found that the interactions that participants had in organized events, like scientific sessions, predicted who formed teams at virtual meetings better than they predicted team formation at in-person meetings, possibly because informal interactions played a larger role at in-person meetings. However, their analysis also implied that in-person conferences boost attendees' overall awareness of other attendees better than virtual meetings do. The findings suggest that conference organizers may want to choose the meeting format that best suits the participants' goals.

[Developing the World's First Undergraduate Quantum Engineering Degree](#)
March 7, 4:24 p.m. PST, Room 226/227

Quantum technology is a fast-growing industry, with job creation outpacing the numbers of new engineers with training in the field. In this talk, Andrea Morello and colleagues will describe the design and implementation of [a new undergraduate quantum engineering degree](#) at the University of New South Wales in Australia. This program is distinct from existing quantum engineering programs in that it was born out of an engineering curriculum rather than a physics curriculum and includes elements of engineering programs like design courses and engineering accreditation, the speakers say. The team says they hope that this new program and the lessons learned from it will inform what a standard quantum engineering curriculum could look like in the future.

[The Story of Bruno Touschek and the Questto Build the World's First Matter-Antimatter Collider](#)
March 21, 9:24 a.m. PDT, Virtual Room 10

Physicist Bruno Touschek led a remarkable life. He survived the Holocaust and went on to propose and oversee the building of the world's first matter-antimatter collider, the Anello di Accumulazione in Italy. In [a new biography,](#) Giulia Pancheri-Srivastava describes Touschek's life journey and includes previously unpublished family letters, new archival research and records of correspondence with several famous physicists of the time. This talk will discuss Touschek's story, including new findings from Pancheri-Srivastava's research.

[Analysis of Energy Usage Reveals New York City's New Normal in the COVID-19 Pandemic](#)

March 21, 1:30 p.m. PDT, Virtual Room 1

The emerging "new normal" brought about by the COVID-19 pandemic has sparked countless predictions about the future of work-from-home policies. Now, scientists have begun collecting information that can be used to identify tangible, long-term changes in the dynamic COVID-19 work-scape. In this virtual poster session, Christoph Meinrenken and colleagues will discuss insights that they derived by sampling average energy usages at specific times in 390 inhabited Manhattan apartments from April 1 to April 28 over the last four years. By doing so, they could tell which apartments were vacant during work hours for the past four years. Most notably, the team found that average electric loads at 12 p.m. from 2020 to 2022 went up to 26%, 24% and 12% respectively when compared to 2019 data at the same time. This result indicates that New Yorkers are still working from home more than they did prior to the pandemic. Other observations — like the finding that New Yorkers are back to waking up as early as they did prepandemic — will also be shared, spotlighting the many nuances that lurk within data used to track work-from-home trends.

[Early Results From a Study on Identity Development of Neurodivergent Nonacademic Physicists](#)

March 21, 1:30 p.m. PDT, Virtual Room 1

Recent data indicates that increasing numbers of neurodivergent students are entering college, but these students tend to drop out or leave their fields at much higher rates than their neurotypical peers. Research in disability studies suggests that certain factors, including encouraging the development of disability identity in students, can mitigate students leaving the field. During this virtual poster session, Liam McDermott will discuss a study that examined identity development in neurodivergent physicists and present preliminary data on the perspectives of neurodivergent physicists who have left the field.