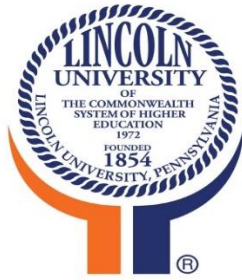# Lincoln University & Princeton University Departmental Partnership

On Tuesday, October 23, 2018, the Department of Mathematical Sciences had the pleasure of hosting Dr. David Gabai, chair of the Department of Mathematics at Princeton University. Dr. Gabai's visit began with a meeting with our own chair, Dr. Claude Tameze, where the two brainstormed about realizing common and complementary goals shared by Lincoln University's Department of Mathematical Sciences and the Department of Mathematics at Princeton University. The chairs were later joined by our faculty, who provided valuable input and feedback to the discussion. These meetings were followed by lunch at the Faculty Lounge.

In the afternoon, Dr. Gabai gave a presentation to the math majors and faculty of our department. Dr. Gabai began with a description the fields of topology and knot theory. In doing so, he encouraged our students to think of working on frontier problems in mathematics, describing such research as analogous to creating a recipe for a new meal, with ingredients built from the course material of one's undergraduate and graduate programs.

Dr. Gabai is a mathematician working in the fields of low-dimensional topology and hyperbolic geometry. He is currently Chair of the Mathematics Department at Princeton University, and is the Hughes-Rogers Professor of Mathematics. Dr. Gabai earned his B.S. degree in mathematics from the Massachusetts Institute of Technology (MIT) and his Ph.D. from Princeton under the direction of William Thurston. He was awarded the Oswald Veblen Prize in Geometry in 2004 and was an invited speaker on Topology at the ICM in Kyoto (1990) and the International Congress of Mathematicians in
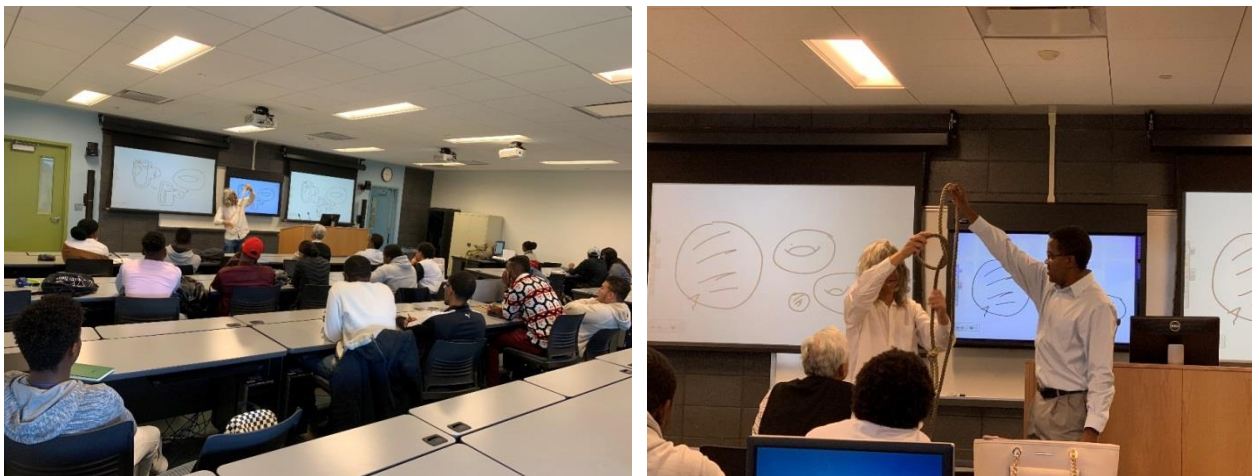
Hyderabad (2010). He is a member of the National Academy of Sciences (2011) and an Inaugural Fellow of the American Mathematical Society (2012). He is known for his foundational results in the topology of 3-manifolds.

Dr. Gabai describing topology and knot theory to our faculty and students.

After his introduction by Dr. Tong Banh, Associate Professor of Mathematics at Lincoln University, Dr. Gabai proceeded with an explanation and visual demonstration of the lightbulb theorem. He then used this demonstration as a foundation to describe the higher-dimensional analogue of the lightbulb theorem that he has succeeded in proving. Dr. Gabai then concluded his presentation with a description of the graduate program in mathematics at Princeton University as he once again challenged our undergraduates to think about working on frontier problems in mathematics.

Dr. Gabai demonstrating the Lightbulb Theorem with assistance from our own Dr. Haimbodi

After his presentation, Dr. Gabai joined our department for a few group photos. "It was a pleasure to speak to a room full of attentive and interested students at Lincoln University," he later said. The Department of Mathematical Sciences would like to take this opportunity to thank Dr. Gabai for his visit.

Prior to Dr. Gabai's invitation, Ms. Jun King and Ms. Jaz'nae Smith, math major and engineering science & math major, respectively, were selected by Dr. Claude Tameze, Chair of the Mathematical Sciences Department, to attend Princeton University's Prospective Ph.D. Preview (P3) from October 4th through 7th, 2018. Ms. King and Ms. Smith had the opportunity to visit with Princeton faculty, staff and students to discuss "the admission process, graduate student life, academic expectations and how to prepare a competitive application." During their visit, they were told by Dr. Renita Miller, Associate Dean for Access, Diversity and Inclusion for the Graduate School; "We hope that by the end of your visit, you will walk away feeling like you can see yourself here, that you belong, and that you are welcomed."

Group Photo with Dr. Gabai

All expenses of Ms. King's and Ms. Smith's visit were paid for by Princeton University. They were part of a 36-student cohort chosen through a partnership with Princeton from Rutgers Honors College, the City University of New York's Macaulay Honors College, Howard University and Lincoln University. Lincoln University's participation in the program was featured on Princeton's website.

Department of Mathematical Sciences Faculty and Staff

Dr. Maiko Arichi	Prof. Abel Ayele	Dr. Tong Banh
Dr. Zachary Carson	Dr. Michael Faulkner	Dr. Moses Haimbodi
Dr. Panakkal Mathew	Dr. Patrick Mwerinde	Dr. Ranjan Naik
Ms. Martha Parisan	Dr. Jawahar Pathak	Dr. Claude Tameze
Dr. Laurellen Treisner	Dr. Penglong Xu	Dr. Vesna Zeljkovic