

2024 JOHNNY HOUSTON LECTURE

THE BLASCHKE-LEBESGUE PROBLEM

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The Blaschke-Lebesgue theorem asserts that the Reuleaux triangle encloses least area among all constant width shapes in the plane. The Blaschke-Lebesgue problem is to find a least volume constant width body in space. Dr. Hynd will discuss this problem and why he thinks the two conjectured volume-minimizing shapes are, indeed, solutions.



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MATHEMATICS BUILDING, ROOM 175

Dr. Ryan Hynd earned his PhD in mathematics from the University of California, Berkeley, in 2010. After a postdoctoral position at NYU's Courant Institute, he joined the mathematics faculty at the University of Pennsylvania where he is an associate professor. In 2016-2017 he was a Dr. Martin Luther King, Jr. Visiting Assistant Professor at MIT. He has held several other visiting positions at mathematics institutes around the world including the Mittag-Leffler Mathematics Institute in Sweden and the Centro de Investigación en Matemáticas (CIMAT) in Mexico. In 2022 he was the recipient of the American Mathematical Society (AMS) Claytor-Gilmer Fellowship and in 2023 he was elected Fellow of the AMS.

Dr. Hynd is widely recognized in the mathematical community for his many contributions to partial differential equations motivated by problems in geometric analysis, functional and extremal inequalities, regularity properties for solutions of nonlinear partial differential equations and eigenvalue estimates. His work combines tools from analysis, geometry, and probability to solve problems in fluid mechanics, control theory and finance. In the classroom he is an innovative teacher.

Dr. Hynd is passionate about promoting diversity in STEM and mentoring students from traditionally underrepresented groups. He was instrumental in creating the Bridge to Ph.D Master's Program at UPenn. Partially funded by his NSF CAREER award, the program became recognized nationally as the Bridge Fellowships Program.



Black Cultural Center



Johnny L. Houston received his PhD in Mathematics at Purdue University in 1974. In 1969 he was one of the founders of Purdue's Black Cultural Center and the National Association of Mathematicians, a professional society promoting excellence in the mathematical sciences among underrepresented minority groups. In 1984 he became Vice Chancellor of Academic Affairs at Elizabeth City State University, and in 1988 was named a Senior Research Professor of Mathematics and Computer Sciences at ECSU.



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