University of Florida • Mathematics Department
14th Ramanujan* Colloquium

by

Professor William Duke**

University of California, Los Angeles

on

Modular Forms in Geometry and Arithmetic

Date and Time: 4:00 - 4:55pm, Monday, March 30, 2020
Room: 101 Little Hall
Refreshments: Before Colloquium in Little Hall Atrium

OPENING REMARKS
by
Professor George E. Andrews
The Pennsylvania State University

Abstract: Ramanujan had a tremendous influence on the theory of modular forms. His intuition about what would be interesting and fruitful was uncanny. I will give a general overview of several applications of the theory of modular forms to some problems in geometry and arithmetic. First I will discuss a recent breakthrough in the theory of sphere packings. Then I will consider some results about the distribution of integral points on spheres, special values of modular functions and the theory of mock modular forms.

The talk is aimed at a general audience; I will not assume knowledge of modular forms.

Professor Duke will also give two additional seminar talks:

(i) Tuesday, March 31, 11:45 – 12:35pm in The Little Hall Atrium (3rd floor):
Markov spectra for modular billiards

(ii) Tuesday, March 31, 3:00 – 3:50pm in The Little Hall Atrium (3rd floor):
On a class number formula of Hurwitz

---

* ABOUT RAMANUJAN: Srinivasa Ramanujan (1887-1920), a self-taught genius from South India, dazzled mathematicians at Cambridge University by communicating bewildering formulae in a series of letters. G. H. Hardy invited Ramanujan to work with him at Cambridge, convinced that Ramanujan was a "Newton of the East"! Ramanujan's work has had a profound and wide impact within and outside mathematics. He is considered one of the greatest mathematicians in history.

** ABOUT THE SPEAKER: William Duke is Professor of Mathematics and former chair at the University of California, Los Angeles. He received his PhD from the Courant Institute (New York University) in 1986 under Peter Sarnak. He is a world expert on the arithmetic and geometry of modular forms. Duke gave an Invited Address at the 1998 International Congress of Mathematicians in Berlin. He was made a fellow of the American Mathematical Society in 2016 for contributions to analytic number theory and the theory of automorphic forms.

ABOUT THE SPONSOR: Evan Pugh Professor George Andrews of The Pennsylvania State University is the world's premier authority in the theory of partitions and work of the Indian mathematical genius Srinivasa Ramanujan combined. He is a Member of the National Academy of Sciences. He has close ties with the UF Mathematics Department which has one of the strongest programs on mathematics related to Ramanujan's work. He was a recipient of an Honorary Doctorate from UF in December 2002. Since 2005, he is a Distinguished Visiting Professor each year in the Spring term in the Mathematics Department. During 2008-2009 he was President of the American Mathematical Society.