[POSTER]

University of Florida, Mathematics Department

SECOND RAMANUJAN* COLLOQUIUM

by

Professor Peter Sarnak**

Princeton University and the Institute for Advanced Study

on

Sieves, the generalized Ramanujan Conjectures and expander graphs

Date and Time: 4:00 - 5:00pm, Wednesday, March 19, 2007
Room: LIT 121
Refreshments: After the lecture in the Atrium (LIT 339)

OPENING REMARKS
by
Ambassador Dennis Jett (Ret'd)
Dean - UF International Center

Abstract: We review various classical problems concerning the existence of primes or numbers with few prime factors as well as some of the developments towards resolving these long standing questions. We then put these problems in a natural and general geometric/group theoretic context of actions by morphisms on affine n-space and indicate what can be established there. The methods used to develop a combinatorial sieve in this context involve automorphic forms and especially the generalized Ramanujan Conjectures, expander graphs and unexpectedly, arithmetic combinatorics. Applications to classical problems such as the divisibilty of areas of Pythagorean triangles and of curvatures of circles in integral Apollonian packings will be given. In the first lecture we will give a general overview (for a general audience), in the second lecture we discuss the interesting special cases for which approximations to the general Ramanujan Conjectures can be used effectively in the analysis and in the third lecture we explain the role of arithmetic combinatorics in dealing with the general problem.

NOTE: After the Ramanujan colloquium, Professor Sarnak will give two Number Theory Seminars on the same topic at 1:55 pm on Thur, Mar 20, and Fri, Mar 21 in LIT 339.

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* 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: Professor Peter Sarnak is one of the most influential mathematicians in the world, due to his fundamental contributions to various aspects of analytic number theory, and by his many leadership roles in the profession. After receiving his BS at the University of Witwatersrand in South Africa, he went to Stanford where he received his PhD in 1980. He then held a tenured position at the Courant Institute (NYU), and a Professorship at Stanford before moving to Princeton in 1991 as Fine Professor of Mathematics. Very recently he has been appointed also as a Permanent Member at the Institute for Advanced Study in Princeton. For his many outstanding contributions, he has received several awards and recognitions including the 2001 Ostrowski Prize, the 2003 Conant Prize and the 2005 Cole Prize of the American Mathematical Society, and the Polya Prize of the Society of Industrial and Applied Mathematics. In 2002 he was elected both as Fellow of the Royal Society (FRS) and as Member of the National Academy of Sciences. He has served on several advisory boards - for the IHES (France), MSRI (Berkeley), the Fields Institute and the NSF. He serves on the Editorial Boards of several journals including the very prestigious Duke Journal and the Annals of Mathematics.

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.

[COLLOQUIUM PHOTOS] [PARTY PHOTOS]

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