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**University of Florida, Mathematics  
Department**  
**FIFTH RAMANUJAN\* COLLOQUIUM**  
by  
**Professor John G. Thompson, FRS\*\***  
Emeritus: University of Cambridge and University of Florida  
on  
***The Divisor Matrix, Dirichlet Series and  $SL(2,Z)$***



**Date and Time:** 4:00 - 5:00pm, Monday, March 21, 2011  
**Room:** The Atrium (LIT 339)  
**Refreshments:** At 3:30pm in the Atrium (LIT 339)

**Abstract:** The lecture will be a report on joint work with Professor Sin which began with a study of the divisor matrix  $D = (d(i,j))$ , where  $d(i,j) = 1$  if  $i$  divides  $j$  and is 0 otherwise; and  $i, j$  range over the natural numbers. This matrix is in the ring of column-finite matrices and there is a homomorphism of the modular group into the group of invertible elements of this ring which maps  $T$  to  $D$  and maps  $S$  to a square root of minus the identity element, where  $T$  is  $(1 \ 1; 0 \ 1)$ , and  $S$  is  $(0 \ -1; 0 \ 1)$ . It is this representation of the modular group which has been the focus of our study. It leads naturally to an action of the modular group on the ring of ordinary Dirichlet series, and to an explicit elliptic curve. I shall discuss other properties of this representation as well.

NOTE: After the Ramanujan colloquium, Professor Thompson will give the following seminars on the same topic.

- Number Theory Seminar, Tue, Mar 22 at 1:55pm in The Atrium
- Algebra Seminar, Wed, Mar 23 at 11:45am in The Atrium

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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: John Griggs Thompson is noted for his work in the classification of finite simple groups. In 1971, Thompson was elected to the United States National Academy of Sciences. In 1982, he was awarded the Senior Berwick Prize of the London Mathematical Society, and in 1988, he received the honorary degree of Doctor of Science from the University of Oxford. Thompson received the Wolf Prize in 1992, and is the only person other than Jean-Pierre Serre to have won all three of the Fields Medal, the Wolf Prize, and the Abel Prize. Thompson was awarded the United States National Medal of Science in 2000. He is a Fellow of the Royal Society (United Kingdom), and a recipient of its Sylvester Medal. He is a member of the Norwegian Academy of Science and Letters. He was Graduate Research Professor at the University of Florida from 1993 to 2010.

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. He has just finished his term as President of the American Mathematical Society.

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[Ramanujan Colloquium](#) \* [University of Florida](#) \* [Mathematics](#) \* [Contact Info](#)

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