University of Florida
Mathematics Department
EIGHTH RAMANUJAN* COLLOQUIUM

by

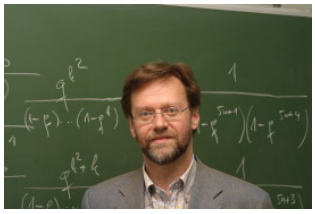
Professor Peter Paule **

Director Research Institute on Symbolic Computation
Johannes Kepler University, Linz, AUSTRIA

on

ANDREWS, RAMANUJAN, AND COMPUTER ALGEBRA

Date and Time: 4:05 - 4:55pm, Monday, March 17, 2014
Room: LIT 339 (The Atrium)
Refreshments: Before Colloquium at 3:30pm



OPENING REMARKS
by
Professor Douglas Cenzer
Chair, Department of Mathematics

Abstract: The thread of the talk is made from various mathematical ideas which, to my pleasure, George Andrews was sharing with me already in statu nascendi. The first part of the talk is devoted to aspects of partition analysis, invented by MacMahon more than a hundred years ago, and brought back to the stage by Andrews. Partition analysis is a method to deal with systems of linear Diophantine constraints over the non-negative integers and thus providing connections to many areas in discrete mathematics, including discrete geometry. Computer algebra experiments carried out with Omega, a computer algebra package implemented by Axel Riese in cooperation with Andrews and the speaker, led to a new combinatorial construction of quotients of Dedekind eta functions. This work in turn stimulated new algorithmic developments by Silviu Radu to manipulate modular forms and functions, and to prove related congruences arising in additive number theory. The talk gives a general overview with numerous examples, many of them related, directly or indirectly, to Srinivasa Ramanujan.

NOTE: After the Ramanujan colloquium, Professor Paule will give the following talks:

- Number Theory Seminar on
  Ramanujan's Congruences Modulo Powers of 5, 7, and 11 Revisited,
  Tue, Mar 18 at 1:55pm in LIT 368.
- Combinatorics Seminar on
  The ABZ of Algorithmic Combinatorics,
  Tue, Mar 18 at 3:00pm in LIT 368.

---

* 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: Peter Paule is Professor of Mathematics and Director of the Research Institute for Symbolic Computation (RISC) at the Johannes Kepler University, Linz, Austria. His main research interests are computer algebra and algorithmic mathematics, together with connections to combinatorics, special functions, number theory, and other related fields. He is on the editorial boards for the Journal of Symbolic Computation and The Ramanujan Journal, and is Managing Editor of Annals of Combinatorics. He is Editor-in-Chief of the Springer book series Texts and Monographs in Symbolic Computation. In January 2014, he was elected Fellow of the American Mathematical Society.

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.

Ramanujan Colloquium * University of Florida * Mathematics
