

George E. Andrews

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Wikipedia: [https://en.wikipedia.org/wiki/George_Andrews_\(mathematician\)](https://en.wikipedia.org/wiki/George_Andrews_(mathematician))

Personal Homepage: <http://personal.psu.edu/gea1/>

Essay by Vivian Choong

George Eyre Andrews is an American mathematician specializing in special functions, number theory, analysis, and combinatorics that is currently an Evans Pugh professor at the University of Pennsylvania. Andrews started his undergraduate studies at Oregon State University with the full intention of studying electrical engineering to become a patent attorney before applying for law school. Within his undergraduate studies, he realized that he would excel in the engineering courses that involved math, while the engineering lab work never seemed to work in his favor. His professor for the numerous math courses Andrews took throughout his freshman and sophomore years, Harry Goheen, inspired him to commit as a math major in his junior year. After receiving an M.A. at Oregon State University and his yearlong Fullbright at the University of Cambridge, Andrews decided to return to America to study analytic number theory at the University of Illinois under the advisory of Paul Bateman in 1961. In 1961-1962, Andrews followed Bateman and visited the University of Pennsylvania. Within that year, Andrews was enamored by Hans Rademacher's course of analytic number theory and decided to have Rademacher, the advisor of Bateman, be his advisor for his thesis instead. Andrews was awarded his Ph.D. in the University of Pennsylvania on his dissertation, *On the Theorems of Watson and Dragonette for Ramanujan's Mock Theta Functions*, under the advisory of Hans Rademacher in 1964.

In 1976, during a sabbatical year from the University of Pennsylvania, Andrews attended a combinatorics conference in Strasbourg. During his time in Strasbourg, Andrews was informed by the late Lucy Slater that the Trinity College Library in Cambridge was holding several G.N Watson's papers and decided to study some of Watson's notes. It was then that Andrews found and identified a 100 plus page manuscript of famous Indian mathematician Ramanujan's last work. It is essential to note that if it were not for his Ph.D. and research on the mock theta functions, he would have never realized this manuscript would be from Ramanujan as most of the pages found were mostly formulas and computations. Andrews noted, "the phrase "mock theta function" does not appear. However, if you had the uniquely good fortune to write your Ph.D. thesis on mock theta functions, you would discover quickly that the mock theta functions appeared extensively in this manuscript." Andrews would then devote most of his academic career to this manuscript, publishing five books with Bruce Berndt on Ramanujan's lost notebook in 2005, 2008, 2012, 2013.

For the past three years, Andrews has been working on and off Conjecture I4 in a paper by S. Kanade and M.C. Russell. This conjecture is related to the Rogers-Ramanujan type identity related to modulus 9. Although his efforts in this problem had led Andrews to several other theorems, he had not made much progress on the original conjecture from when he first started in 2018. He notes that the most fulfilling aspect of his effort on Conjecture I4 was the unexpected tangential discoveries stemming from this original conjecture.