# Mathematics Colloquium
## Thursday, November 1st 1:30 PM-2:30 PM
## STV 401

## LIVING WITH RAMANUJAN FOR FORTY YEARS

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Beginning in May, 1977, the speaker began to devote all of his research efforts to proving the approximately 3000 claims made by Ramanujan without proofs in his notebooks. While completing this task a little over 20 years later, with the help, principally, of his graduate students, he began to work with George Andrews on proving Ramanujan's claims from his "lost notebook." After another 20 years, with the help of several mathematicians, including my doctoral students, Andrews and I think we have found proofs of all the claims in the lost notebook.

One entry from the lost notebook connected with the famous Dirichlet Divisor Problem remained painfully difficult to prove. Borrowing from Sherlock Holmes, G.N. Watson's retiring address to the London Mathematical Society in November, 1935 was on the "final problem," arising from Ramanujan's last letter to Hardy. Accordingly, we have called this entry the "final problem," because it was the last entry from the lost notebook to be proved. Early this summer, a proof was finally given by Junxian Li, who just completed her doctorate at the University of Illinois, Alexandru Zaharescu (her advisor), and myself. We will discuss the identity comprising the "final problem" as well as other highlights from our 40 year investigation of the (earlier) notebooks and the lost notebook.

Part of my lecture will be historical, as I will tell you how I became interested in Ramanujan and his notebooks.