

1145-AE-646 **Ken Ono*** (ken.ono@emory.edu), Dept Mathematics, Emory University, Atlanta, GA 30322.
Ramanujan and Recent Work on the Riemann Hypothesis and Related Problems. Preliminary report.

Hardy and Ramanujan famously invented the "circle method" in their work on partitions. They gave the first asymptotic formula for $p(n)$, the number of partitions of integers of size n . Despite further advances by Rademacher and others, some of the simplest questions about partitions remained open. One of these problems relates to log-concavity, a property that was not completely confirmed for $p(n)$ until 2013 with the work of DeSalvo and Pak. Inspired by this work, mathematicians have been investigating refinements and generalizations for partitions. By working on these questions, the speaker (together with Griffin, Rolin and Zagier) has made an unexpected connection with the celebrated Riemann Hypothesis. This lecture will tell this fascinating story, culminating with new evidence and theorems about RH. (Received September 12, 2018)