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Alexander J Dunn* (ajdunn2@illinois.edu). *Maass forms and the mock theta function $f(q)$.*

In 1964, George Andrews proved an asymptotic formula (finite sum of terms) involving generalized Kloosterman sums and the I -Bessel function for the coefficients of Ramanujan's famous third order mock theta function. Andrews conjectured that these series converge when extended to infinity, and that if they do not converge absolutely. Bringmann and Ono proved the first of these conjectures in 2006. Here we obtain a power savings bound for the error in Andrews' formula, and we also prove the second of these conjectures.

Our methods depend on the spectral theory of Maass forms of half-integral weight, and in particular on a new estimate which we derive for the Fourier coefficients of such forms. This talk aims to be a blend of number theory, combinatorics and analysis. This is a joint work with Scott Ahlgren. (Received August 17, 2019)