1135-11-2417 **Nicolas Allen Smoot*** (nsmoot@risc.uni-linz.ac.at), Julius Raab Strasse 10/5/2523, 4040 Linz, Austria. *The Computation of Ramanujan–Kolberg Identities.* Preliminary report.

In 1919 Ramanujan discovered a pair of beautiful identities relating the generating functions for $p(5n+4)$ and $p(7n+5)$ to rational sums and quotients of Dedekind's eta function. These were shown by Kolberg to be special cases of a more general class of identities, now called Ramanujan–Kolberg identities. The identities of this type are notable for illustrating a remarkable connection between complex analysis and number theory, and are especially useful for studying congruences in various partition functions studied by Andrews, Paule, and Radu. Recently, an algorithm by Radu was developed which uses the theory of modular functions to produce the Ramanujan–Kolberg identities inherent in various arithmetic functions. It takes as input an arithmetic sequence $a(n)$ which has an eta quotient as a generating function, along with a pair of integers m, t, with $0 \leq t < m$, and a given integer N. Radu's algorithm returns the Ramanujan–Kolberg identities for $a(mn+t)$ over a space of eta quotients modular with respect to $\Gamma_0(N)$. We give an implementation of this algorithm. As examples, we will show some newly discovered identities, including recent results in broken diamond partitions and some identities involving $p(11n+6)$. (Received September 26, 2017)