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Bruce C. Berndt* (berndt@illinois.edu), Dept. of Mathematics, University of Illinois, 1409 W. Green St., Urbana, IL 61801. *A Riesz Sum Analogue of an Identity in Ramanujan's Lost Notebook.*

In his lost notebook, Ramanujan states without proofs two remarkable identities that are connected with the famous unsolved circle and divisor problems. The identities involve double series of Bessel functions. In the study of the average order of arithmetical functions, say $a(n)$, an identity for $\sum_{n \leq x} a(n)$ may not exist, but an identity for the Riesz sum $\sum_{n \leq x} a(n)(x - n)^\alpha$ may exist for sufficiently large α . For Ramanujan's identity associated with the divisor problem, we establish a Riesz sum identity involving double series of Bessel functions that generalizes Ramanujan's result. This continues the work of the author and his coauthors, Sun Kim and Alexandru Zaharescu, connected with the aforementioned two identities of Ramanujan. (Received February 08, 2014)