

1154-11-2606      **Robert Schneider\*** ([robert.schneider@uga.edu](mailto:robert.schneider@uga.edu)), Athens, GA 30602, and **Andrew V. Sills**.  
*Analysis and combinatorics of partition zeta functions.*

We examine “partition zeta functions” analogous to the Riemann zeta function but summed over subsets of integer partitions. We prove an explicit formula for a family of partition zeta functions already shown to have nice properties — those summed over partitions of fixed length — which yields complete information about analytic continuation, poles and trivial roots of the zeta functions in the family. We then present a combinatorial proof of the explicit formula, which shows it to be a zeta function analog of MacMahon’s partial fraction decomposition of the generating function for partitions of fixed length. (Received September 17, 2019)