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Cristina M Ballantine* (cballant@holycross.edu) and **Mircea Merca**. *Bisected theta series, least r -gaps in partitions, and polygonal numbers.*

The least r -gap, $g_r(\lambda)$, of a partition λ is the smallest part of λ appearing less than r times. In this article we introduce two new partition functions involving least r -gaps. We consider a bisection of a classical theta identity and prove new identities relating Euler's partition function $p(n)$, polygonal numbers, and the new partition functions. To prove the results we use an interplay of combinatorial and q -series methods. (Received September 24, 2017)