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**Elizabeth M Reid\*** ([elizabeth.reid@marist.edu](mailto:elizabeth.reid@marist.edu)), Department of Mathematics, Marist College, 3399 North Road, Poughkeepsie, NY 12601. *Using Inclusion-Exclusion to find Bent and Balanced Monomial Rotation Symmetric Functions.*

There are many cryptographic applications of Boolean functions. Recently, research has been done on monomial rotation symmetric (MRS) functions which have useful cryptographic properties. Here we use the inclusion-exclusion principle to develop a formula for the weight of degree  $d$  short monomial rotation symmetric functions in  $n$  variables. We then expand on this method to construct a formula for the weight of  $d$ -functions. From these results we classify bent and balanced functions of these forms. (Received July 16, 2019)