S. Chen and J. Ding* (jiudin@gmail.com), Department of Mathematics, Hattiesburg, MS 39406. *Ulam’s Method via Dirac’s Delta Function Approach.

For a piecewise monotonic mapping $S$ from an interval into itself we develop a piecewise constant approximation method for computing an absolutely continuous invariant measure with respect to $S$. The approach is based on the definition of the corresponding Frobenius-Perron operator that employs Dirac’s delta function which will be approximated by pulse functions. We show that the resulting numerical scheme is exactly the classic Ulam’s method. Other types of approximations will also be considered for higher order methods. (Received April 10, 2012)