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Jiu Ding*, Department of Mathematics, University of Southern Mississippi, 118 College Dr., Box 5045, Hattiesburg, MS 39406, and **Noah Rhee**, Department of Mathematics and Statistics, University of Missouri at Kansas City, Kansas City, MO 64110. *A Least squares Method for Computing a Stationary Density of the Frobenius-Perron Operator.*

We propose a piecewise linear least squares approximation method for computing stationary density functions of Frobenius-Perron operators associated with piecewise C^2 and stretching mappings of the unit interval. Using techniques from matrix analysis and difference equations, we prove the L^1 -norm and the BV -norm convergence of the method. (Received June 29, 2009)