John E Herr* (jeherr@butler.edu). Computation of Fourier Series with Respect to the Cantor Measure via the Kaczmarz Algorithm. Preliminary report.

We show how the Kaczmarz algorithm can be used to construct series of the form \( \sum_{n=0}^{\infty} c_n e^{2\pi i nx} \) for functions in \( L^2(\mu) \) where \( \mu \) is any singular measure on the unit circle, even when there does not exist an orthogonal basis or frame of functions of the form \( e^{2\pi i \lambda x} \). We explain how the coefficients of these series can be numerically approximated, and we demonstrate explicit Fourier-type series for select functions with respect to the ternary Cantor measure. (Received September 13, 2019)