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Joseph A Vandehey* (vandehey.1@osu.edu), 100 Math Tower, 231 West 18th Avenue,
Columbus, OH 43210. *Differencing methods for Korobov-type exponential sums.*

Korobov was very interested in exponential sums of the type

$$\sum_{n=0}^{N-1} e^{\frac{2\pi i a b^n}{q}}$$

for integers a, b, q with b and q coprime. This sum is closely related to the base- b expansion of rational numbers. Many powerful techniques for estimating exponential sums involve differencing methods that are not helpful for these Korobov-type sums due to the exponential b^n . We introduce a new differencing method that can improve estimations in very large ranges of these sums. (Received September 01, 2016)