

### Abstract

Integer sequences of the form  $\lfloor n^c \rfloor$ , where  $1 < c < 2$ , can be locally approximated by sequences of the form  $\lfloor n\alpha + \beta \rfloor$  in a very good way. Following this approach, we are led to an estimate of the difference

$$\sum_{n \leq x} \varphi(\lfloor n^c \rfloor) - \frac{1}{c} \sum_{n \leq x^c} \varphi(n) n^{\frac{1}{c}-1},$$

which measures the deviation of the mean value of  $\varphi$  on the subsequence  $\lfloor n^c \rfloor$  from the expected value, by an expression involving exponential sums. As an application we prove that for  $1 < c \leq 1.42$  the subsequence of the Thue-Morse sequence indexed by  $\lfloor n^c \rfloor$  attains both of its values with asymptotic density  $1/2$ .