On Finiteness and Periodicity Properties of Shift Radix Systems (SRS)

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Abstract
For \( r = (r_0, \ldots, r_{d-1}) \in \mathbb{R}^d \) the shift radix system (SRS) \( \tau_r \) is defined by the function

\[
\tau_r : \mathbb{Z}^d \rightarrow \mathbb{Z}^d, \quad z = (z_0, \ldots, z_{d-1}) \mapsto (z_1, \ldots, z_{d-1}, -[rz]),
\]

where \( rz \) is the scalar product of the vectors \( r \) and \( z \) (cf. Akiyama et al. [1]). If each orbit of \( \tau_r \) ends up at \( 0 \), we say that \( \tau_r \) has the finiteness property. We want to present a number of recent results gained together with H.Brunotte, A.Pethő, P.Surer and J.Thuswaldner (cf. [2],[4] and [5]) on mappings \( \tau_r \) with finiteness property as well as on such mappings with more general periodicity properties. We also present a generalization of the notion of SRS to the Gaussian integers (cf. [3]).

References