Distribution of some linear recurrence sequences modulo 1

Let $X = (x_n)_{n=1}^{\infty}$ be a sequence of real numbers satisfying linear recurrence

$$x_n = a_1 x_{n-1} + a_2 x_{n-2} + \ldots + a_k x_{n-k} + \ldots + a_{d-1} x_{n-d+1} + a_d x_{n-d}.$$

We consider the case when the characteristic polynomial of X is an irreducible polynomial in $\mathbb{Z}[x]$ which is the minimal polynomial of a $\pm$ Pisot number.

Let

$$L(X) := \sup_{\xi \in \mathbb{R}} \liminf_{n \to \infty} \|\xi x_n\|.$$

Recently A. Dubickas obtained the exact formulas for $L(X)$ in two cases: $d = 1$ and $d = 2$, $a_1 \geq a_2$.

In the talk we generalize these results and introduce some new bounds for $L(X)$ when $d \geq 3$.