



Mathematics > Functional Analysis

A hereditarily indecomposable Banach space with rich spreading model structure

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We present a reflexive Banach space $\mathfrak{X}_{\text{usm}}$ which is Hereditarily Indecomposable and satisfies the following properties. In every subspace Y of $\mathfrak{X}_{\text{usm}}$ there exists a weakly null normalized sequence $\{y_n\}_n$, such that every subsymmetric sequence $\{z_n\}_n$ is isomorphically generated as a spreading model of a subsequence of $\{y_n\}_n$. Also, in every block subspace Y of $\mathfrak{X}_{\text{usm}}$ there exists a seminormalized block sequence $\{z_n\}$ and $T: \mathfrak{X}_{\text{usm}} \rightarrow \mathfrak{X}_{\text{usm}}$ an isomorphism such that for every $n \in \mathbb{N}$ $T(z_{2n-1}) = z_{2n}$. Thus the space is an example of an HI space which is not tight by range in a strong sense.

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