Hùng Việt Chu
On Generalized Zeckendorf Decompositions and Generalized Golden Strings,
Fibonacci Quart. **59** (2021), no. 3, 254–261.

Abstract

Zeckendorf proved that every positive integer has a unique representation as a sum of nonconsecutive Fibonacci numbers. A natural generalization of this theorem is to look at the sequence defined as follows: for $n \geq 2$, let $F_{n,1} = F_{n,2} = \cdots = F_{n,n} = 1$ and $F_{n,m+1} = F_{n,m} + F_{n,m+1-n}$ for all $m \geq n$. It is known that every positive integer has a unique representation as a sum of $F_{n,m}$'s, where the indices of summands are at least n apart. We call this the n-decomposition. Griffiths showed an interesting relationship between the Zeckendorf decomposition and the golden string. In this paper, we continue the work to show a relationship between the n-decomposition and the generalized golden string.