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A result about cycles in Ducci sequences,
Fibonacci Quart. **51** (2013), no. 2, 137–141

Abstract

We prove that for any $k \in \mathbb{N}$, k not a power of two, there are cyclic vectors of length k which are not the concatenation of two or more copies of a vector of smaller length. As an application of this, we give a new proof of the fact that the period of a Ducci sequence can be any positive integer with the exception of the powers of 2 greater than 1.