

## On an exponential Diophantine equation involving powers of consecutive terms of the Padovan sequence

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**Abstract.** In this paper, we find all Padovan numbers which are sums of same powers of consecutive Padovan numbers. Our proofs combine techniques on Diophantine approximation, namely the theory of linear forms in logarithms of algebraic numbers, Baker’s method, and the reduction techniques involving the theory of continued fractions due to Dujella–Pethő, as well as the usual properties of the Padovan sequence.

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