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

Author(s): Florian Luca, Euloge Tchammou and Alain Togbé

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.

Address:

Florian Luca
School of Mathematics
University of the Witwatersrand
Private Bag X3
Wits 2050
South Africa
and
Research Group in Algebraic
Structures and Applications
King Abdulaziz University
Jeddah
Saudi Arabia
and
Centro de Ciencias Matematicas
UNAM
Morelia
Mexico

Address:

Euloge Tchammou
Institut de Mathématiques et
de Sciences Physiques
Dangbo
Bénin

Address:

Alain Togbé
Department of Mathematics
and Statistics
Purdue University Northwest
1401 S, U.S. 421
Westville, IN 46391
USA