PARIS
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UNIVERSITÄT
SALZBURG

Mathematik

Gastvortrag

Donnerstag, 5. Mai 2022
Uhrzeit: 09:15 Uhr
Seminarraum I

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University of Zagreb

On the problem of Padovan and Perrin numbers which are products of two repdigits

Abstract:

In this talk we consider the problem of searching for all Padovan and Perrin numbers that can be expressed as a product of two repdigits in the base b, where $2 \leq b \leq 10$. The Padovan sequence $(P_n)_{n \geq 0}$ is defined with initial values $P_0 = P_1 = P_2 = 1$ and the recurrence relation $P_{n+3} = P_{n+1} + P_n$ for $n \geq 0$, while the Perrin sequence $(T_n)_{n \geq 0}$ is given by the same recurrence relation but with the initial values $T_0 = 3$, $T_1 = 0$ and $T_2 = 2$. We prove that the largest Padovan and Perrin numbers which can be expressed as a product of two repdigits are $P_{25} = 616 = 77_{10} \cdot 8_{10}$ and $T_{22} = 486 = 22_8 \cdot 33_8 = 11_8 \cdot 66_8$. In the proofs, we combine some tools from Diophantine approximation and Baker's theory on linear forms in logarithms of algebraic numbers. This is joint work with Kouessi Norbert Adédji and Alain Togbé.

Eingeladen von Clemens Fuchs