



Der Wissenschaftsfonds.



Institut für Analysis und Zahlentheorie

Zahlentheoretisches Kolloquium

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Seminarraum Analysis-Zahlentheorie, Kopernikusgasse 24, 2.OG

On Padovan and Perrin numbers which are products of two repdigits

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In this talk we consider the problem of searching for all Padovan and Perrin numbers which can be expressed as a product of two repdigits in the base b , where $2 \leq b \leq 10$. Padovan sequence $(P_n)_{n \geq 0}$ is defined with $P_0 = P_1 = P_2 = 1$ and $P_{n+3} = P_{n+1} + P_n$ for $n \geq 0$, while Perrin sequence $(T_n)_{n \geq 0}$ is given by $T_0 = 3, T_1 = 0, T_2 = 2$ and the same recurrence relation $T_{n+3} = T_{n+1} + T_n$ for $n \geq 0$. 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 use 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.

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