Abstract. In my talk I will examine dimension of the graph of the famous Weierstrass non-differentiable function

\[ W_{\lambda,b}(x) = \sum_{n=0}^{\infty} \lambda^n \cos(2\pi b^n x) \]

for an integer \( b \geq 2 \) and \( 1/b < \lambda < 1 \). In our recent paper, together with Balázs Bárány and Krzysztof Barański, we prove that for every \( b \) there exists (explicitly given) \( \lambda_b \in (1/b, 1) \) such that the Hausdorff dimension of the graph of \( W_{\lambda,b} \) is equal to \( D = 2 + \frac{\log \lambda}{\log b} \) for every \( \lambda \in (\lambda_b, 1) \). We also show that the dimension is equal to \( D \) for almost every \( \lambda \) on some larger interval. This partially solves a well-known thirty-year-old conjecture. Furthermore, we prove that the Hausdorff dimension of the graph of the function

\[ f(x) = \sum_{n=0}^{\infty} \lambda^n \phi(b^n x) \]

for an integer \( b \geq 2 \) and \( 1/b < \lambda < 1 \) is equal to \( D \) for a typical \( \mathbb{Z} \)-periodic \( C^3 \) function \( \phi \).

In my talk I will talk about these results as well as I will introduce Ledrappier-Young theory and results of Tsujii, which were used in the proofs.