

THE MATKOWSKI–WESOŁOWSKI PROBLEM

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Assume that $\varphi: [0, 1] \rightarrow [0, 1]$ is a function. Janusz Matkowski and Jacek Wośowski were interested in the following functional equation:

$$\varphi(x) = \varphi\left(\frac{x}{2}\right) + \varphi\left(\frac{x+1}{2}\right) - \varphi\left(\frac{1}{2}\right).$$

They formulated their interest differently, but essentially their question boiled down to whether there is a continuous solution φ (different from the identity) that is increasing and keeps 0 and 1 fixed.

My poster is about my journey together with Janusz Morawiec into studying this equation and its generalizations.

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