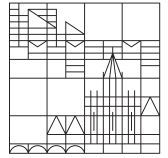


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Some classical Diophantine problems

Dijana Kreso

Graz University of Technology, Austria

Abstract. My poster covers some of my results in the area of Diophantine equations. Of my particular interest are Diophantine equations of separated variables type, $f(x)=g(y)$, and some related problems about the factorisation of polynomials with respect to functional composition. In the poster I list some of the most important results in this field of research, and state some of the theorems I proved (one in a joint work with Csaba Rakazcki). Then I discuss the Diophantine m -tuples problem, which is a classical problem that has received a lot of attention in the last three decades. The problem is to determine the size and properties of sets of nonzero elements of a ring (e.g. integers) such that the product of any two elements of the set increased by 1 is a square. I mention several approaches to the problem, and discuss in more details the results I obtained jointly with Adzaga, Dujella and Tadic in 2017. Then I discuss a classical Diophantine equation asking for integers with all digits equal to one with respect to two distinct bases, and focus on the recent results of mine obtained jointly with Bennett and Gherga.