Exposé court

128 *Arithmetic of cubic number fields: Jacobi–Perron, Pythagoras, and indecomposables*

Tinková, Magdaléna (Czech Technical University in Prague)

Additively indecomposable integers are a useful tool in the study of universal quadratic forms or the Pythagoras number in totally real number fields. However, except for real quadratic fields and several families of cubic fields, we do not know their precise structure.

In the case of real quadratic fields $\mathbb{Q}(\sqrt{D})$ where $D > 1$ is square-free, they can be derived from the continued fraction of $\sqrt{D}$ or $\frac{\sqrt{D}-1}{2}$, depending on the value $D \pmod 4$. Thus, it is natural to ask whether we can obtain indecomposable integers in a similar manner in fields of degrees strictly greater than 2. Since classical continued fraction is not periodic for irrationalities of higher degrees, it is convenient to turn our attention to multidimensional continued fractions. There exist many algorithms generating such expansion, and we will focus on the Jacobi–Perron algorithm. In this talk, we will discuss elements originating from Jacobi–Perron expansions of concrete vectors in several families of cubic fields.

This is joint work with Vítězslav Kala and Ester Sgallová.