

The goal of this thesis is to study the geometric generalization of continued fractions, especially in the case when these continued fractions are periodic. We develop a multidimensional integer geometry theory for general lattices, and using this theory, we define periodic continued fractions for general lattices and simplicial cones. We are in particular interested in two different constructions of periodic continued fractions, one coming from $SL(n, \mathbb{Z})$ matrices, and another from orders in totally real number fields of degree n . We generalize these constructions and prove that there is a one-to-one correspondence between the generalized constructions.