

Euclidean Algorithm in Circle/Sphere Packings

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It is well-known that the standard Euclidean algorithm for integers can be given a geometric description by passing to hyperbolic geometry. It is somewhat less well-known that for rings of integers of imaginary quadratic fields, you can relate the Euclidean algorithm to studying the tangency structure of certain circle packings. We shall review this construction and show how this generalizes to orders of rational quaternion algebras and sphere packings.