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One digit, two digit, big digit, small digit

Abstract: Our topic will be the theory of Iwasawa continued fractions, studied by the speaker and Anton Lukyanenko. This broad category includes several real and complex continued fraction algorithms, as well as higher-dimensional algorithms in the quaternions, octonions, and Heisenberg groups. Several important properties of real continued fractions extend to these higher-dimensional objects, including a connection to hyperbolic geometry. We will look at what is known about these Iwasawa continued fractions as well as what is still yet to be determined, focusing in particular on the question of perturbation: to what extent are dynamical properties preserved or destroyed by minute changes to the underlying algorithm, and how do these relate to the size of the continued fraction digits?