Topology, Algebraic Geometry, & Dynamics Seminar

Ergodicity of Iwasawa continued fractions via markable hyperbolic geodesics

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Every real number can be written as a continued fraction (CF) of the form $x = a_0 + 1/(a_1 + 1/(a_2 + \cdots))$, where the continued fraction coefficients a_i are integers, and positive for $i > 0$. A classical "ergodicity" result states that almost all real numbers have the same CF behavior, e.g. the proportion of digits satisfying $a_i = 42$ is the same for almost choices of x.

In this talk, I will discuss the way to extend CF theory beyond the real numbers to complex numbers, quaternions, octonions, and beyond. Using a connection to hyperbolic geometry, we prove that all proper and complete CF algorithms are ergodic.

Date: **Friday, September 14, 2018**
Time: **2:30-3:20 pm**
Place: **4106 Exploratory Hall**

For special accommodations, please contact Sean Lawton via email at `slawton3@gmu.edu`.