1077-11-2499 **Krishna Dasaratha*** (dasaratha@college.harvard.edu), 476 Quincy House Mail Center, Cambridge, MA 02138, and **Thomas Garrity**, **Laure Flapan**, **Chansoo Lee**, **Cornelia Mihaila**, **Nicholas Neumann-Chun**, **Sarah Peluse** and **Matthew Stoffregen**. *Unique Sequences for Multidimensional Continued Fractions.* Preliminary report.

Many generalizations of continued fractions assign sequences of integers to pairs of real numbers by partitioning a triangle with linear maps. Such algorithms include the Mönkemeyer map, the triangle map, the Brun Algorithm, the Fully Subtractive Algorithm, and the Güting map. These multidimensional continued fractions need not map pairs of real numbers to integer sequences injectively. The Mönkemeyer map is topologically convergent, meaning distinct points in $\mathbb{R}^2$ map to distinct sequences, but several useful algorithms are not. This talk will present general criteria for when a sequence determines a unique point with respect to any of these algorithms. The most important result relates the set of points with a given sequence to the vertices of the new triangle after each partition. These criteria are particularly relevant for periodic sequences. If a periodic sequence determines a unique point (x, y) with respect to such a multidimensional continued fraction algorithm, then x and y are contained in a number field of degree at most three. We classify periodic sequences for a family of multidimensional continued fractions recently constructed by the authors. (Received September 22, 2011)