

# Mathematics Colloquium

## Continued fractions and their generalizations

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11 – 11:50 am  
Building 180, Room 112

### Abstract

While continued fractions have been studied for over two millennia, it was less than a decade ago that a particularly fruitful  $q$ -analog was introduced by Morier-Genoud and Ovsienko. These  $q$ -continued fractions have since revealed unexpected connections among combinatorics, geometry, and representation theory. They can be computed by counting dimers (or perfect matchings) on certain graphs called snake graphs. In this talk, we will use a natural generalization of dimers to introduce higher  $q$ -continued fractions. We will provide a matrix formula for computing them and show that stability and positivity properties from the original  $q$ -continued fractions still hold. Based on joint work with Nick Ovenhouse, Ralf Schiffler, and Sylvester Zhang.

*About the speaker:* Amanda Burcroff is currently an NSF & School of Science Dean's Postdoc at MIT, where her research focuses mainly on algebraic combinatorics. In particular, she studies positivity properties in cluster algebras that unify phenomena across mathematics and physics. She completed her Ph.D. at Harvard University under the supervision of Lauren Williams and has previously studied mathematics in England, Hungary, and France.