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Katharine Ahrens* (kaahrens@ncsu.edu), Raleigh, NC 27606. *Combinatorial Applications of the k -Fibonacci Numbers.*

Fibonacci numbers have fascinated mathematicians for hundreds of years. They continue to appear in surprising places across diverse branches of math.

In this talk, we examine a generalization known as the k -Fibonacci numbers. We explain how they arose organically during the course of our research on a cryptographically-motivated problem in polynomial and matrix theory, and how they neatly answer a question about k -tridiagonal matrices. We also present four other combinatorially interesting objects which the k -Fibonacci numbers count: classes of restricted permutations, integer compositions, binary strings, and subsets. (Received January 16, 2020)