# CCSU

**DEPARTMENT OF MATHEMATICAL SCIENCES**

# COLLOQUIUM

Friday, August 31
2:00 – 3:00 PM
Maria Sanford, Room 101

## RECREATIONS WITH GRAPH THEORY

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**CENTRAL CONNECTICUT STATE UNIVERSITY**

**Abstract:** This talk applies basic graph theory to a variety of recreational mathematical situations using the software package, Mathematica. Examples include finding a knight's tour on a torus chess board; analyzing a 262 move endgame in chess (KRN vs. KNN); solving word ladders, which is a puzzle invented by Lewis Carroll in 1877; and finding sets of Gaussian primes with an interesting property. The emphasis is translating applications into graph theoretic terms, not the mathematics of graph theory, so all are encouraged to attend, especially puzzle-lovers.

Challenge: A word ladder is a sequence of words, each differing from its immediate neighbors by exactly one letter. For example, COLD can be changed to WARM as follows: COLD   CORD   CARD   WARD   WARM. If you're a word maven, try changing CRADLES to TRANCES.