CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, February 21
3:00 – 4:00 PM
Maria Sanford, Room 101

"GRATE" EXPECTATIONS

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Abstract: Originally inspired by the process of recording student grades on a traditional grade sheet, we define an (n, k)-grate to be a binary n-tuple containing k ones, such that there are never two adjacent zeroes. After developing a formula to count the number of grates in terms of the parameters n and k (for which there is a pleasing combinatorial proof), we then consider the process of flipping the bits (0's turning into 1's) of a sequence of n zeroes until a grate is created. For a given value of n, we are interested in the expected number of bit-flips needed to obtain a grate. Hence, we obtain the fitting pun given in the title of the talk. (Rest assured, additional puns will be littered throughout the presentation!)

In a talk aimed to be (mostly) accessible and interesting to mathematics majors and faculty alike, the many connections this problem has with famous mathematical work (e.g., Pascal's Triangle and the Fibonacci Sequence) will also be explored.

To join us online use the following link: https://ccsu.webex.com/meet/gotchev
For further information: gotchevi@ccsu.edu; 860-832-2839; http://mathcolloquium.sites.ccsu.edu/