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**Shih-Wei Chao\*** (shih-wei.chao@ung.edu), **Neil Calkin**, **Catherine Davison**, **Krista Kelly** and **Ana Andreea Stoica**. *Counting kings and a connection with Catalan numbers*. Preliminary report.

Let  $f_{m,n}$  be the number of placements of non-attacking kings on a  $m \times n$  chessboard. We will analyze the generating function  $f_{m,n}(x)$  using formal power series to (1) find the connection between Catalan numbers and Fibonacci numbers and (2) give the formula for  $[x^k]f_{m,n}(x)$  for certain  $k$ ,  $m$ , and  $n$ . We will finish the talk by introducing some open questions including but not limited to matrices and 3-D chessboard. (Received September 12, 2016)