

James Madison University  
Mathematics Colloquium

**Vertex Coloring Planar Graphs, Inductively and  
Theoretically**

Prof. Geir Agnarsson  
George Mason University

Wednesday, February 1  
7:00 pm

Room 031, Burruss Hall

**Abstract**

Vertex coloring planar graphs has long captured the attention of mathematicians and computer scientists. In this talk we will introduce various types of vertex colorings and related parameters. In particular, we will discuss the *chromatic number*  $\chi(G)$  of a graph  $G$ , the *inductiveness*  $\text{ind}(G)$  of  $G$  and the choosability  $\text{ch}(G)$  of  $G$ . For a planar graph  $G$  we will consider its *square*  $G^2$  and derive a sharp upper bound for the inductiveness  $\text{ind}(G^2)$  of  $G^2$ . For an arbitrary  $k \in \mathbb{N}$  we show that the chromatic number and the inductiveness of the  $k$ -power  $G^k$  of  $G$  is an  $\Theta(\Delta^{\lfloor k/2 \rfloor})$ -function. Here,  $\Delta$  is the maximum degree of a vertex of the graph in question.

Prof. Agnarsson will be available to answer questions about the new Ph.D. program at George Mason.

**Students who think they might be interested in going to graduate school should plan on attending this talk!**