

# Discrete Mathematics & Combinatorics

## Coloring graphs from random lists

**Carl Johan Casselgren**

Linköpings universitet, Sverige

The topic of this talk is list coloring of graphs. In this model each vertex of a graph is assigned a list (set) of colors and the task is then to construct a proper coloring of the graph such that each vertex gets a color from its list. I will review some basic facts about list coloring and then discuss a relatively new variation on list coloring where each vertex receives a random list: let  $G = G(n)$  be a graph on  $n$  vertices, and assign to each vertex  $v$  of  $G$  a list  $L(v)$  of colors by choosing each list independently and uniformly at random from all  $k$ -subsets of a color set of size  $\sigma = \sigma(n)$ . I will discuss various conditions which imply that with probability tending to 1 as  $n$  goes to infinity,  $G$  has a proper coloring from the random lists.