David Galvin* (dgalvin1@nd.edu). The extremal enumerative question for colouring.

In the mid-1980’s Linial and Wilf independently raised the question “which $n$-vertex, $m$-edge graph admits the most proper $q$-colourings?”. This has proven to be a tough nut to crack, and has generated lovely work from Lazebnik, Loh, Norine, Pikhurko, Sudakov, Woldar and others.

A more restrictive question, “which $n$-vertex, $d$-regular graph admits the most proper $q$-colourings?” is also proving tough to answer, but at least here there is a very concrete conjecture. A similar “extremal enumerative’ question can be asked for many family of graphs.

In this talk I’ll survey some of the work that has been done on these questions, and highlight open problems. (Received February 23, 2015)