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Richard P. Stanley*, Department of Mathematics, M.I.T., Cambridge, MA 02139. *Chromatic symmetric functions of certain graphs.*

The *chromatic symmetric function* of a graph G with vertex set $V = \{v_1, \dots, v_p\}$ is the power series $X_G = \sum_{\kappa} x_{\kappa(v_1)} \cdots x_{\kappa(v_p)}$, where κ ranges over all proper coloring of G with the colors $1, 2, \dots$. It is a generalization of the chromatic polynomial of G for which we keep track of how many times each color is used. Since X_G is a symmetric function, it can be written as a polynomial in the elementary symmetric functions e_1, e_2, \dots . An intriguing conjecture asserts that this polynomial has nonnegative coefficients when G is the incomparability graph of a $(3+1)$ -avoiding poset. We will discuss the significance of this conjecture and mention some interesting special cases. (Received September 02, 2011)