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Deepak Bal and **Jonathan Cutler*** (jonathan.cutler@montclair.edu). *Enumerative Nordhaus-Gaddum inequalities.*

Nordhaus and Gaddum proved the following inequalities that give upper and lower bounds on the sum and product of the chromatic number of a graph and its complement.

$$2\sqrt{n} \leq \chi(G) + \chi(\overline{G}) \leq n + 1 \quad \text{and} \quad n \leq \chi(G)\chi(\overline{G}) \leq \frac{(n+1)^2}{4}.$$

Inspired by these results, Nordhaus-Gaddum inequalities have been studied for many other graph invariants. Recently, Wagner gave a lower bound on the sum of the number of dominating sets in a graph on its complement. In this talk, we discuss some related results and their connections to well-known areas of study in graph theory. (Received January 15, 2020)