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De-clawing graph theory

This talk requires no prior knowledge and will be a gentle introduction to colouring graphs. It will be suitable for a broad audience including undergraduates. We will start with some historical tales, including the four colour map problem and the chromatic polynomial. We will then meet the chromatic symmetric function, dating from 1995, which is a generalization of the chromatic polynomial. A famed conjecture on it, called the Stanley-Stembridge $(3+1)$ -free conjecture, has been the focus of much research lately including resolving another problem of Stanley of whether the $(3+1)$ -free conjecture can be widened. The resulting paper on the latter problem was recently awarded the 2023 David P. Robbins Prize, and we will hear this story too.