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Symmetric Configurations

A geometric configuration (p_q, n_k) is a collection of p points and q straight lines, usually in the Euclidean plane, so that each point lies on q lines and each line passes through k points. This talk will discuss configurations with high degrees of symmetry; in other words, configurations in which the number of symmetry classes of points and of lines formed by isometries of the plane mapping the configuration to itself is small. Of particular interest will be *astral configurations*, where a (p_q, n_k) configuration is astral if it has precisely $\lfloor \frac{k+1}{2} \rfloor$ symmetry classes of points and $\lfloor \frac{q+1}{2} \rfloor$ symmetry classes of lines—the fewest possible.