

Eric Swartz (Western Australia)

Generalized Quadrangles With Symmetry

Abstract for the Combinatorics, Geometry/Topology, and Algebra Seminars 2015 February 26

A generalized quadrangle is a point-line incidence geometry Q such that (1) any two points lie on at most one line, and (2) given a line l and a point P not incident with l , P is collinear with a unique point of l . Generalized quadrangles are a specific type of generalized polygon, which were first introduced by Tits in 1959 as geometries associated to classical groups. It is natural, then, to ask the question: if one starts with the abstract definition of a generalized quadrangle, which ones are highly symmetric? I will discuss the background of this question, leading to the following recent work, joint with John Bamberg and Cai-Heng Li.

An antiflag of a generalized quadrangle is a non-incident point-line pair (P, l) . We say that the generalized quadrangle Q is antiflag-transitive if the group of collineations (automorphisms that send points to points and lines to lines) is transitive on the set of all antiflags. We prove that if a finite, thick generalized quadrangle Q is antiflag-transitive, then Q is one of the following: the unique generalized quadrangle of order $(3,5)$, a classical generalized quadrangle, or a dual of one of these.

The talk will assume no prior knowledge of finite geometry.

From:

<https://www2.math.binghamton.edu/> - **Department of Mathematics and Statistics, Binghamton University**

Permanent link:

<https://www2.math.binghamton.edu/p/seminars/comb/abstract.201502swa>

Last update: **2020/01/29 19:03**

