

Abstract submitted for Thirty-Third Annual Victorian Algebra Conference

Title: Schubert Calculus and Finite Geometry

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Ovoids in projective space were first defined by Jacques Tits in 1962 after the realisation that the Suzuki groups have a natural action on sets of points which share many geometric properties with elliptic quadrics. In 1972, Jef Thas gave a definition of ovoids for polar spaces. The study of ovoids is an active field of research in finite geometry, and there are many open problems. Schubert calculus involves translating geometric properties to a Schubert variety and studying its cohomology. Schubert varieties are one of the most well-studied complex projective varieties in the literature.

It is known that some non-degenerate hyperplane sections of Schubert varieties are ovoids. Therefore, it is natural to ask: what are the necessary and sufficient conditions for hyperplane sections of Schubert varieties to be ovoids? I will talk about the current progress on this problem.