



*Institute of Mathematical Research
Department of Mathematics*

COLLOQUIUM

On some problems in finite geometry

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Date: November 8, 2012 (Thursday)

Time: 4:30 – 5:30pm

Venue: Room 210, Run Run Shaw Bldg., HKU

Abstract

In this talk we recall some long-standing conjectures in finite geometry and discuss some new approaches to their study. These include the Prime Power Conjecture – a finite projective plane has prime power order; a special case which is the Prime Power Conjecture for cyclic projective planes; and the latter has a stronger version which is “Singer’s” conjecture – a finite cyclic projective plane is classical (Desarguesian). We shall describe the geometry of polar ovals and unitals, and explain how their characterization and classification will help in the study of the conjectures. In particular there is the open problem on determining whether the Hall’s unital embedded in a cyclic projective plane is classical, i.e. a unital isomorphic to that determined by a hermitian curve in the classical plane. In this direction we shall discuss some intrinsic characterizations and conjectures concerning the classical unital, including Piper’s conjecture on characterizing the classical unital by the absence of O’Nan configurations.

All are welcome