

HONOURS SEMINAR

Michael Malagride

Presentation of Marden's Theorem

Thursday December 7, 2017

2:00 p.m.

Mathematics and Statistics Lounge, CW307.20

Abstract: The relationship between the roots of a complex polynomial of degree three and the roots of the derivative of that same polynomial are linked in a geometric way. Marden's Theorem states that the triangle given by the 3 roots of a polynomial will have an inellipse whose focal points are exactly the roots of the derivative. However, this inellipse is more special in that it is tangent at each of the midpoints of the sides of the triangle, and we call this a Steiner Inellipse. The goal will be will discuss the methods of the proof of Marden's Theorem (there might be others) as well as general properties of ellipses.