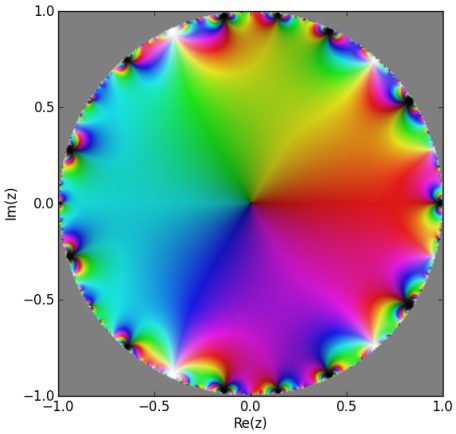
Secret Student Seminar

Experimental Algebra & Geometry Lab

A System of Differential Equations for Modular Forms Level 11

Danny Lara
Department of Mathematics
University of Texas-Pan American



Abstract

We work with theta functions associated with matrix groups defined modulo 11. We conjecture and prove a coupled system of differential equations involving quotients of theta functions. This differential system is analogous to other known systems satisfied by theta functions of level 5 and 7. The level 5 and 7 systems were derived using elliptic function identities, a method that was computationally difficult to apply for the level 11 system. To prove the system of differential equations, we apply elementary linear algebra, calculus, and dimension formulas for vectors spaces from Sage.

Date: Friday, November 8, 2013
Time: 2:00pm–3:00pm
Place: MAGC 1.302

Pizza and soda will be served at the presentation.

For further information or for special accommodations, please contact Dr. Sean Lawton via email at `lawtonsd@utpa.edu`.