

ALGEBRA
UNDERGRADUATE HONORS THESIS DEFENSE

3F2-hypergeometric functions and supersingular elliptic curves

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Abstract: Here we explore elliptic curves, specifically supersingular elliptic curves, and their relationship to hypergeometric functions. We begin with some background on elliptic curves, supersingularity, hypergeometric functions, and then use work of El-Guindy, Ono, Kaneko, Zagier, and Monks to extend results. In recent work, Monks described the supersingular locus of families of elliptic curves in terms of 2F1-hypergeometric functions. We lift his work to the level of 3F2-hypergeometric functions by means of classical transformation laws and a theorem of Clausen.

Tuesday, April 1, 2014, 2:30 pm
Mathematics and Science Center: W304

MATHEMATICS AND COMPUTER SCIENCE
EMORY UNIVERSITY