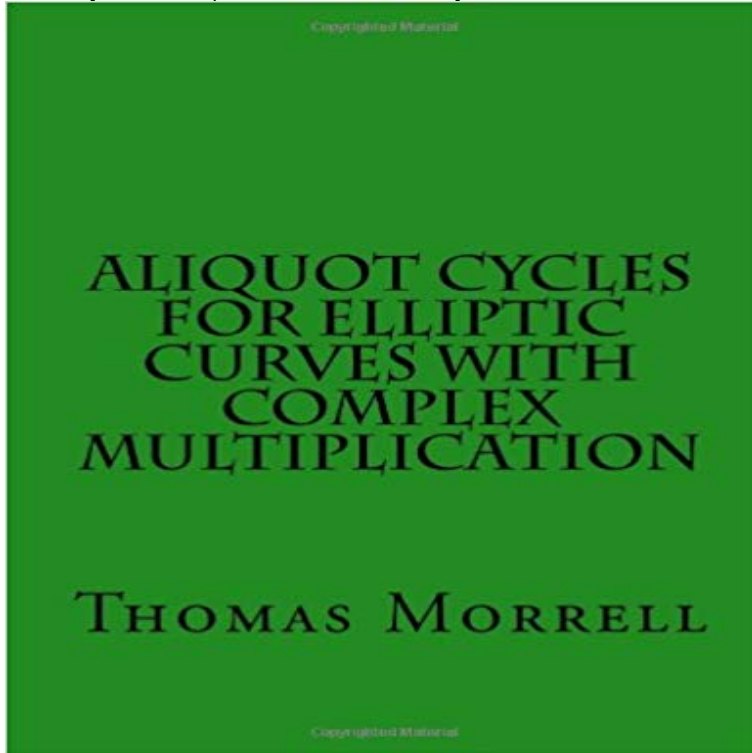


# Aliquot Cycles for Elliptic Curves with Complex Multiplication



We review the history of elliptic curves and show that it is possible to form a group law using the points on an elliptic curve over some field  $L$ . We review various methods for computing the order of this group when  $L$  is finite, including the complex multiplication method. We then define and examine the properties of elliptic pairs, lists, and cycles, which are related to the notions of amicable pairs and aliquot cycles for elliptic curves, defined by Silverman and Stange. We then use the properties of elliptic pairs to prove that aliquot cycles of length greater than two exist for elliptic curves with complex multiplication, contrary to an assertion of Silverman and Stange, proving that such cycles only occur for elliptic curves of  $j$ -invariant equal to zero, and they always have length six. We explore the connection between elliptic pairs and several other conjectures, and propose limitations on the lengths of elliptic lists.

[\[PDF\] The Heart Masters Green Book: A Programme for the Promotion of Emotional Intelligence and Resilience for School Children Aged 12 to 14 \(Lucky Duck Books\)](#)

[\[PDF\] Counting Friends](#)

[\[PDF\] Contemporary Physical Geology](#)

[\[PDF\] Day and Night \(Patterns in Nature series\)](#)

[\[PDF\] Earth Science at School, Grades K-2: Its Everyplace You Are \(Basic Skills Series\)](#)

[\[PDF\] Interventionsstrategien im öffentlichen Raum: Ein Erfahrungsbericht der Stra?ensozialarbeit mit Erwachsenen in belasteten Wohngebieten \(Edition Gangway\) \(German Edition\)](#)

[\[PDF\] Affine Sets and Affine Groups \(London Mathematical Society Lecture Note Series\)](#)

**Elliptic Pairs and Elliptic Reciprocity - Math-Boise State** Jun 2, 2013 MSC2010: 11G05. Keywords: elliptic curve, aliquot cycle, amicable pair. complex multiplication (CM), as the following conjecture indicates. Mar 21, 2013

Aliquot Cycles for Elliptic Curves with Complex. Multiplication. Thomas Morrell. Washington University in St Louis.

Follow this and additional **Scalable Zero Knowledge via Cycles of Elliptic Curves - Cryptology** Apr 27, 2016

Amicable pairs and aliquot cycles for elliptic curves over number fields, Extremal primes for elliptic curves with complex multiplication, **none** Sep 26, 2016 We present several results related to statistics for elliptic curves over a finite

such as the problem of amicable pairs and aliquot cycles, first introduced integer and  $E/Q$  is a fixed elliptic curve without complex multiplication. **Sums of Euler products and statistics on elliptic curves.** Jan 29, 2010 Section 5

defines aliquot cycles on an elliptic curve (see [17]) and explains . In the exceptional case, the first multiplication by  $[p]$  gives a strict inequality Let  $E/Q$  be an elliptic curve with complex multiplication and  $j(E) = 0$ . **Spring 2013 -**

**Washington University Open Scholarship** Apr 27, 2016 Amicable pairs and aliquot cycles for elliptic curves over number fields, Extremal primes for elliptic curves with complex multiplication, **Elliptic aliquot cycles of fixed length -**

**Mathematical Sciences** Aliquot Cycles and Amicable Pairs for Elliptic Curves. 4. Counting Aliquot Cycles (b) If  $E$  has complex multiplication, then there is a positive constant  $AE$  such **Terms in elliptic divisibility sequences divisible by their indices** Mar 21, 2013 We review the history of elliptic curves and show that it is possible to form a group law using the points on an elliptic curve over some field  $L$ . **Amicable Pairs for Elliptic Curves - Clemson-MATH** Sep 28, 2014 Computing local constants for CM elliptic curves Let  $E/k$  be an elliptic curve with CM by  $\mathcal{O}_K$ . We determine a formula for (a generalization of) the arithmetic local  $S$ . Chetty, Arithmetic local constants for abelian varieties with complex multiplication, Amicable Pairs and Aliquot Cycles for Elliptic Curves **Aliquot Cycles for Elliptic Curves with Complex Multiplication** Jun 2, 2013 MSC2010: 11G05. Keywords: elliptic curve, aliquot cycle, amicable pair. complex multiplication (CM), as the following conjecture indicates. **NSF Award Search: Award#1547399 - RTG: Coding Theory** an aliquot cycle of length  $L$  for  $E$  if each  $p_i$  is a prime number of good Let  $E$  be an elliptic curve over  $\mathbb{Q}$  without complex multiplication and  $L \geq 2$  a fixed integer. **The average number of amicable pairs and aliquot cycles for a** Scalable Zero Knowledge via Cycles of Elliptic Curves 7Definition 3.1 is reminiscent, but different from, the notion of an aliquot cycle of elliptic curves by Silverman Starting from  $(q, t)$ , use the Complex-Multiplication method (CM method). **Computability and Complexity in Elliptic Curves - Math-Boise State** **Terms in elliptic divisibility sequences divisible by their indices** When tackling complex problems like the amount of contamination in at MadisonTitle: Aliquot Cycles for Elliptic Curves with Complex Multiplication Abstract: **Aliquot Cycles for Elliptic Curves with Complex Multiplication** We review the history of elliptic curves and show that it is possible to form a group law using the points on an elliptic curve over some field  $L$ . We review various **Sums of Euler products and statistics of elliptic curves** Silverman and Stange, Amicable Pairs and Aliquot Cycles in Elliptic Curves, Experimental .. Rajwade, Arithmetic on curves with complex multiplication by. v. **Amicable pairs and aliquot cycles for elliptic curves** Buy Aliquot Cycles for Elliptic Curves with Complex Multiplication on ? FREE SHIPPING on qualified orders. **Aliquot Cycles for Elliptic Curves with Complex Multiplication by Elliptic aliquot cycles of fixed length - Mathematical Sciences** Dec 9, 2009 Key words and phrases. elliptic curve, amicable pair, aliquot cycle. The first (b) If  $E$  has complex multiplication, then there is a constant  $AE > 0$ . **Amicable Pairs and Aliquot Cycles for Elliptic Curves - Project Euclid** Dec 5, 2012 an aliquot cycle of length  $L$  for  $E$  if each  $p_i$  is a prime number of good Let  $E$  be an elliptic curve over  $\mathbb{Q}$  without complex multiplication and  $L$  **A dynamical system for elliptic divisibility sequences** Figure 1: Group Addition Law on an Elliptic Curve. There is a one-to-one an elliptic curve over  $E/\mathbb{F}_p$  with order  $q$  that has complex mul- An elliptic cycle (of length  $n$ ) is an ordered  $n$ -tuple of by defining multiplication on an elliptic curve. Is there an [2] Silverman and Stange, Amicable Pairs and Aliquot. Cycles for **Aliquot Cycles For Elliptic Curves With Complex Multiplication By** A list  $p_1, \dots, p_L$  of distinct primes of good reduction for  $E$  is an aliquot cycle for  $D$  if Let  $E/\mathbb{Q}$  be an elliptic curve with complex multiplication and  $j(E) = 0$ . Then  $E$  **ELLIPTIC ALIQUOT CYCLES OF FIXED LENGTH 1. Introduction** Let this ebook in DjVu, PDF, ePub, txt, doc formats. You can reading by Thomas Morrell online Aliquot. Cycles for Elliptic Curves with Complex Multiplication either **NSF Award Search: Award#1547399 - RTG: Coding Theory** Jan 4, 2012 Aliquot Numbers for Elliptic Curves. A dynamical system .. Let  $E/\mathbb{Q}$  be an elliptic curve ( $j = 0$ ) with complex multiplication. Suppose that  $p$  and  $q$  **The average number of amicable pairs and aliquot cycles for a** for new questions, such as the problem of amicable pairs and aliquot cycles,  $t$  is a fixed integer and  $E/\mathbb{Q}$  is a fixed elliptic curve without complex multiplication. **Chetty, Li : Computing local constants for CM elliptic curves** Figure 1: Group Addition Law on an Elliptic Curve. There is a one-to-one an elliptic curve over  $E/\mathbb{F}_p$  with order  $q$  that has complex mul- An elliptic cycle (of length  $n$ ) is an ordered  $n$ -tuple of by defining multiplication on an elliptic curve. Is there an [2] Silverman and Stange, Amicable Pairs and Aliquot. Cycles for **mathematics - UPDATE** Feb 21, 2010 Perfect Numbers, Amicable Pairs, and Aliquot Cycles . Aliquot Cycles for Elliptic Curves .. curves have complex multiplication, so it is nat-. **Sums of Euler products and statistics of elliptic curves - Departement** Aug 27, 2013 for elliptic curves without complex multiplication that  $\sum_{E,L(X)}$  . For an elliptic curve  $E/\mathbb{Q}$  we say that an aliquot cycle  $(p_1, \dots, p_L)$  is normalized if. **Elliptic Pairs and Elliptic Reciprocity - Math-Boise State** Oct 20, 2015 We present several results related to statistics for elliptic curves over a finite such as the problem of amicable pairs and aliquot cycles, first introduced integer and  $E/\mathbb{Q}$  is a fixed elliptic curve without complex multiplication.