EDITORIAL

Terry Goodman

On December 15, 2005 Curtis Cooper and Steven Boone, participants in the Great Internet Mersenne Prime Search and leaders of Central Missouri State Universitys GIMPS team, discovered the 43rd Mersenne prime. The number, $2^{30402457}-1$ has 9,152,052 decimal digits and is the largest known prime number.

A prime number is a positive integer greater than 1 which is only divisible by itself and one. A Mersenne number is a number of the form $2^p - 1$, where p is a prime. And a Mersenne prime is a Mersenne number which itself is prime.

GIMPS, an organization devoted to finding Mersenne primes, was founded by George Woltman in January 1996. Woltman is the author of Prime95, a program which implements the Lucas-Lehmer (LL) test to determine whether a Mersenne number is a Mersenne prime. His software is freely available on the web at www.mersenne.org. In 1997 Scott Kurowski began providing the PrimeNet Server to GIMPS participants. The Server automates the process of assigning exponents to GIMPS volunteers and checking-in results. Because of its early start, GIMPS has been the pioneer and arguably the most successful distributed computing project in history. It has discovered 9 Mersenne primes since its inception.

The CMSU GIMPS team began slowly in 1997 when Cooper started running Woltmans software on 4 Linux computers in a computer science Linux lab. In 1998, Cooper expanded the project to about 30 computers in the Linux lab and the project continued to expand to include Windows computers all over CMSUs campus. In 1999 Vince Edmondson joined Cooper in leading CMSUs GIMPS effort. For the next four plus years, Cooper and Edmondson tested many exponents for CMSUs team. Unfortunately, Edmondson passed away in June 2003 from brain cancer. At that time Boone stepped forward to join Cooper in leading CMSUs GIMPS team. For the next two and a half years Cooper and Boone and CMSUs GIMPS team continued to test exponents as part of GIMPS. And in mid-December 2005, the many years of work as part of the GIMPS project came to fruition with the discovery of M30402457. Besides the discovery of M30402457, the CMSU GIMPS team is the leading producer of LL-testing in the GIMPS project, using over 700 computers on CMSUs campus, testing over 30,000 exponents, and accumulating over 71,000 Pentium-90 CPU computing years of testing.

The discovery of this prime is the result of a lot of hard work by many faculty, staff, administrators, and computer technicians at CMSU. CMSUs GIMPS team also owes much to Woltman for organizing GIMPS and writing Prime95 and to Kurowski for writing and maintaining the PrimeNet

Server. And CMSUs GIMPS team also is indebted to every volunteer on CMSUs GIMPS team. However, the prime discovery was just short, by 900,000 digits, of claiming the $100,000 prize offered by the Electronic Frontier Foundation (EFF) for the discovery of the first prime number containing more than 10 million decimal digits.

Because of Hurricane Rita, we were unable to acknowledge all of our referees for MJMS for the past year. In addition to the referees named in the Fall 2005 issue, the following referees' contribution to the journal is also very important and we appreciate the time and energy they give to their task of reviewing submitted manuscripts.

David Brown, *Ithaca College*
Miguel Caldas, *Fluminense Federal University*
Jennifer Fowler Daniel, *Lamar University*
Saeid Jafari, *Roskilde University Center*
Alec Matheson, *Lamar University*
Rhonda McKee, *Central Missouri State University*
Kandasamy Muthuvel, *University of Wisconsin - Oshkosh*
Ollie Nanyes, *Bradley University*
Dix Pettey, *University of Missouri - Columbia*
Harold Reiter, *University of North Carolina - Charlotte*
Scott Thatcher, *Truman State University*
Haohao Wang, *Southeast Missouri State University*

And one last item to point out. As you may have noticed, the format and cover of the *MJMS* has changed. Please note that we have also changed the subscription rates. When you receive your next renewal notice, we will remind you of the new rates. We hope that the new format will make the *MJMS* better than ever.