Department of Computer Sciences
Purdue University
West Lafayette, IN 47907
January 14, 2004

Several "Wanted" numbers were factored on Page 92, all of them "More Wanted." From the wanted lists issued with Page 89 last March, Dodson factored 2,659+ by the Elliptic Curve Method and CWI factored 12,193− and 12,199− by the Special Number Field Sieve. (On Page 93, Kruppa will factor the "More Wanted" number 3,412+.)

Dodson factored the "Smaller-but-Needed" number 2,1318M by ECM.

New wanted lists and enlarged "Smaller-but-Needed" lists appear on another sheet.

CWI means Peter Montgomery and Herman te Riele at the Centrum voor Wiskunde en Informatica in Amsterdam. ECMNET means Paul Zimmermann, Alex Kruppa, Torbjörn Granlund, Michel Quercia, Witold Grabysz, Vilmar Trevisan and many helpers who use the GMP-ECM program of Kruppa and Zimmermann. NFSNET" is a group of factorers lead by Jeff Gilchrist, Don Leclair, Paul Leyland and Richard Wackerbarth and with contributions from many volunteer workers. See their URL `http://www.nfsnet.org` .

There were two new champions for factoring Cunningham numbers on this page. Recall that a champion is one of the best two records in its class. The P45 factor of 5,343− was a new champion (second place) for the Pollard $p-1$ method. The P56 factor of 2,827+ was a new champion (second place) for the Elliptic Curve Method.

The two 77-digit prime factors of 12,193− reported in #4907 are fairly close to each other. They may come from an algebraic factorization like those discovered by Aurifeuille. The two primes are:

45217442809188335376258573027831301630813739280371078165650059881162723213257
46575681210815057292336472816642998460431175135914483032447698371111751624211

The first holes done on Page 92 are in # 4894/4895, # 4906/4907, # 4912, # 4914 and # 4919. The second holes done on Page 92 are in # 4881 and # 4920. The only third hole done on Page 92 is in # 4891. The fourth holes done on Page 92 are in # 4874 and # 4910. No fifth hole was done on Page 92.

The smallest new factor reported on Page 92 has 40 digits. See # 4877 and # 4878. The largest number factored on Page 92 has 249 digits. See # 4917.

See the URL `http://www.prothsearch.net/fermat.html` for Wilfrid Keller's list of all known Fermat factors.

See the URL `http://www.utm.edu/research/primes/largest.html` for Chris Caldwell's list of all of the largest known Mersenne primes. The new largest Mersenne prime, the fortieth one, is $2^{20996011}-1$.

See the URL `http://www.cerias.purdue.edu/homes/ssw/cun/index.html` for the online Cunningham book. The full text is available at the AMS web site: `http://www.ams.org/online_bks/conm22` .

If your address changes, please tell me.

Keep the factors coming!

Sam Wagstaff