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Abstracts of Short Communications and Posters

Section:

3. Number Theory and Arithmetic Algebraic Geometry

1991 MS Classification: 11
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New type $(i,1)$ amicable pairs with greatest common factor a power of 2 or a prime times a power of 2
Two natural numbers M and N are amicable if $S(M) = S(N) = M + N$, where $S(M)$ is the sum of the divisors of M. The amicable pairs are of type $(i,1)$ if $M = E * (p1 * p2 * \cdots pi)$ and $N = E * q$, where E is the greatest common factor (GCF) of M and N, and q and each pj are different primes not dividing E for $j = 1, 2, \cdots i$. We use a result of Borho and Hoffmann to obtain several new pairs of type (2, 1) with $GCF =$ a prime times a power of 2. We also list several new pairs of type (3, 1) with $GCF =$ a power of 2. Two new theorems are given concerning numbers of the latter type.
Reference: W. Borho and H. Hoffmann, Breeding natural numbers in Abundance, Math. Comp. 46 (1986), 281-293.