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A congruence of Emma Lehmer related to Euler numbers

A congruence of Emma Lehmer (1938) for Euler numbers E_{p-3} modulo p in terms of a certain sum of reciprocals of squares of integers was recently extended to prime power moduli by T. Cai et al. In this paper we generalize this further to arbitrary composite moduli n and characterize those n for which the sum in question vanishes modulo n . Primes for which $E_{p-3} \equiv 0 \pmod{p}$ play an important role in this, and we present some numerical results, including several new such primes. (Joint work with John B. Cosgrave.)