Carmichael meets Chebotarev

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Abstract. For any finite Galois extension K of $\mathbb{Q}$ and any conjugacy class C in $\mathrm{Gal}(K/\mathbb{Q})$, we show that there exist infinitely many Carmichael numbers composed solely of primes for which the associated class of Frobenius automorphisms is C. This result implies that for every natural number n there are infinitely many Carmichael numbers of the form $a^2 + nb^2$ with $a, b \in \mathbb{Z}$.