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Infinitely many nonsolvable groups whose Cayley graphs are hamiltonian

It has been conjectured that if G is any finite group, then every connected Cayley graph on G has a hamiltonian cycle. This conjecture has been verified for numerous groups that either are small or are close to being abelian, but we provide the first verification that includes infinitely many non-solvable groups. More precisely, we exhibit infinitely many primes p, such that every connected Cayley graph on the direct product $A_5 \times \mathbb{Z}_p$ has a hamiltonian cycle (where A_5 is the alternating group on 5 letters).