Abstract

Let $(F_n)_{n \geqslant 0}$ be the *Fibonacci sequence* given by $F_0 = 0$, $F_1 = 1$, and the recurrence formula $F_{n+2} = F_{n+1} + F_n$ for all $n \geqslant 0$. In this note, we completely solve the Diophantine equation

$$F_n = 2^a \pm 2^b + 1$$

in positive integers (n, a, b) with $a > b \geqslant 1$.