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**Title:** On a pure ternary exponential Diophantine equation

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Let  $r$  be a positive integer with  $r > 1$  and  $m$  a positive even integer. Let  $a = |V(m, r)|$ ,  $b = |U(m, r)|$ , and  $c = m^2 + 1$ , where  $V(m, r) + U(m, r)\sqrt{-1} = (m + \sqrt{-1})^r$ . In this paper we prove that if  $m > \max\{10^{15}, 2r^3\}$ , then the equation  $a^x + b^y = c^z$  has only the positive integer solution  $(x, y, z) = (2, 2, r)$ .

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