Title: On a pure ternary exponential Diophantine equation

Author(s): Maohua Le, Alain Togbé and Huilin Zhu

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 $(x, y, z) = (2, 2, r)$.

Address:
Maohua Le
Research Institute of Mathematics
Zhanjiang Normal College
Zhanjiang 524048
P.R. China

Address:
Alain Togbé
Mathematics Department
Purdue University North Central
1401 S, U.S. 421
Westville IN 46391
USA

Address:
Huilin Zhu
School of Mathematical Sciences
Xiamen University
Xiamen 361005
P.R.China