

1035-11-1871 **Adeniran Adeboye*** (aadeboye@howard.edu), Department of Mathematics, Howard University, 2441 Sixth Street N. W., Washington, DC 20059. *On the equation $X^{2p} + Y^{2p} = Z^{2p}$* . Preliminary report.

Whereas the monumental work by Andrew Wiles has put an end to the era of intractableness of Fermat's Last Theorem, there is still the nagging question as to whether there can be a method of proof that does not use a lot of machinery or sophisticated modern concepts, especially given Fermat's claim to have had a proof. The search for such a proof must have acquired added push when in 1977 Guy Terjanian, using only classical methods, proved that if p is an odd prime and X, Y, Z are counting numbers such that $2p$ divides neither X nor Y , then the equation $X^{2p} + Y^{2p} = Z^{2p}$ cannot hold (C. R. Acad. Sci. Paris 285 (1977) 973-975). In this report, we prove, using simple algebraic techniques, that even if $2p$ divides X or Y , the equation $X^{2p} + Y^{2p} = Z^{2p}$ just never holds.

We first formulate an obstruction to the equation as an expression $(a + b)c - 2ab$, where a, b, c are the values, at a distinguished point, of three relevant polynomials of degree $p - 1$. We thereafter prove that, for $p > 1$, this obstruction never vanishes. (Received September 20, 2007)