JP Journal of Mathematical Sciences Volume 3, Issues 1 & 2, 2011, Pages 23-54

AN ALGEBRAIC-ANALYTIC APPROACH OF FERMAT-CATALAN CONJECTURE

Jamel Ghanouchi

Abstract

We begin with Beal equation (or Fermat-Catalan) $U^{c+2} = X^{a+2} + Y^{b+2}$ and establish two equivalent equations. We generalize the approach to all Fermat-Catalan equations which allows us to relate the problem to Matyasevich theorem. Our approach will lead us to propose a new conjecture concerning Fermat-Catalan equations.

Keywords and phrases: Fermat-Catalan, diophantine equations, analysis, series, Fourier series, conjecture.

Received December 14, 2011

References

- H. Darmon and A. Granville, On the equations and ., Bull. London Math. Soc. 27 (1995), 513-543.
- [2] N. Elkies, The ABCs of number theory, Harvard Math. Rev. 1 (2007), 64-76.
- [3] R. D. Mauldin, A generalization of Fermat's last theorem: The Beal conjecture and prize problem, Not. Amer. Math. Soc. 44 (2003), 1436-1437.