

1154-05-444

James D. Currie, Lucas Mol* (1.mol@uwinnipeg.ca) and **Narad Rampersad**. *The repetition threshold for binary rich words.*

A word of length n is rich if it contains n nonempty palindromic factors. An infinite word is rich if all of its finite factors are rich. Baranwal and Shallit produced an infinite binary rich word with critical exponent $2 + \sqrt{2}/2$ and conjectured that this was the least possible critical exponent for infinite binary rich words (i.e., that the repetition threshold for binary rich words is $2 + \sqrt{2}/2$). In this article, we give a structure theorem for infinite binary rich words that avoid $14/5$ -powers. As a consequence, we deduce that the repetition threshold for binary rich words is $2 + \sqrt{2}/2$, as conjectured by Baranwal and Shallit. This resolves an open problem of Vesti for the binary alphabet; the problem remains open for larger alphabets. (Received September 04, 2019)