1052-11-150 **Jingjing Huang*** (`huang@math.psu.edu`), Penn State University Mathematics Dept., University Park, State College, PA 16802. *Binary Egyptian Fractions and Erdos-Straus-Schinzel Conjecture.*

The Erdös-Straus-Schinzel conjecture in the field of Egyptian fractions asserts that for any positive rational numbers $\frac{a}{n}$ with fixed numerator $a \geq 4$ can always be expressed as a sum of three unit fractions except for a finitely many counterexamples. This conjecture has been open for the last 60 years. We hardly know anything about it except for an upper bound for the possible counterexamples, with denominator up to a height N, which was established by R.C. Vaughan in 1970. In this talk, I will try to investigate the average of the number of solutions with binary terms, instead of 3. In this case, an asymptotic formula has been worked out for the L^1 mean of the number of solutions. Though this is a simplification of the original conjecture, still it may illustrate how to obtain a similar result for the original problem, in the later work. Actually, by assuming a certain type of Manin Conjecture, a conditional result can be established with respect to the Erdös-Straus-Schinzel conjecture. (Received August 25, 2009)

1