1120-14-103 **Bruce Reznick*** (reznick@illinois.edu), 1409 W Green St, Urbana, IL 61801. *Sums of powers of binary quadratic forms.* Preliminary report.

Suppose $p \in \mathbb{C}[x, y]$ is a binary form of degree $2d$. We are interested in the minimum number k of quadratic forms q_j so that

$$p = \sum_{j=1}^{k} q_j^d.$$

We show that *every* sextic binary form p can be written a sum of three cubes of binary quadratic forms in infinitely many different ways, and we present an algorithm for finding some (but not all) solutions. This is part of a larger project with Boris Shapiro. (Received February 16, 2016)