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Bruce Reznick* (reznick@math.uiuc.edu), 1409 W. Green St., Urbana, IL 61801. *On Hilbert's theorem for psd ternary sextics*. Preliminary report.

In 1893, Hilbert proved that if p is a psd ternary sextic form, then there exists a ternary quadratic form h with the property that hp is a sum of three squares of ternary quartic forms. We plan to discuss explicit instances of this theorem. (Received February 02, 2009)