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Mohamed Omar* (momar@math.ucdavis.edu), Mathematics 253-37, Pasadena, CA 91125, and
Brian Osserman. *Strong Nonnegativity and Sums of Squares.*

We introduce strong nonnegativity on real varieties, which has the property that a sum of squares is strongly nonnegative. We show that this algebraic property is equivalent to nonnegativity for nonsingular real varieties. Moreover, for singular varieties, we reprove and generalize obstructions of Gouveia and Netzer to the convergence of the theta body hierarchy of convex bodies approximating the convex hull of a real variety. (Received August 30, 2011)