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Josephine Yu* (jyu@math.gatech.edu), School of Mathematics, Skiles Building, 686 Cherry St, Atlanta, GA 30332. *Tropicalizing the positive semidefinite cone.*

A tropical positive semidefinite matrix is the valuation of a semidefinite matrix over the field of real Puiseux series. The tropical PSD matrices coincides with the normal cone at a vertex of the Newton polytope of the symmetric determinant. We find generators and defining inequalities of the cone. The PSD tropical quadratic forms are those that induce the trivial subdivision on the standard simplex dilated by two. We also show that the tropical PSD cone is the tropical convex hull of the set of symmetric matrices of tropical rank one and that every tropical PSD matrix can be factored as a tropical product of a matrix and its transpose. (Received June 06, 2014)