

# Hyperbolicity cones of elementary symmetric polynomials are spectrahedral

Petter Brändén

(Submitted on 13 Apr 2012)

We prove that the hyperbolicity cones of elementary symmetric polynomials are spectrahedral, i.e., they are slices of the cone of positive semidefinite matrices. The proof uses the matrix--tree theorem, an idea already present in Choe et al.

Comments: 7 pages, 2 figures

Subjects: **Optimization and Control (math.OC)**; Combinatorics (math.CO)

Cite as: [arXiv:1204.2997](#) [math.OC]

(or [arXiv:1204.2997v1](#) [math.OC] for this version)

## Submission history

From: Petter Branden [[view email](#)]

[v1] Fri, 13 Apr 2012 14:04:37 GMT (8kb)

*[Which authors of this paper are endorsers?](#)*

## Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

[math.OC](#)

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1204](#)

Change to browse by:

[math](#)

[math.CO](#)

References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))



Science  
WISE