

Info

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$\mathbf{Pd}(n, \mathbb{R})$

Definition. Positive definite matrices

$$\mathbf{Pd}(n, \mathbb{R}) := \{A \in \mathbf{Mat}(n, \mathbb{R}) \mid \forall v \in \mathbb{R}^n, \ v^\mathbf{T}Av > 0\}$$
$$\mathbf{SPd}(n, \mathbb{R}) := \{A \in \mathbf{Mat}(n, \mathbb{R}) \mid \det A = 1, \ \forall v \in \mathbb{R}^n, \ v^\mathbf{T}Av > 0\}$$
$$= \mathbf{Pd}(n, \mathbb{R}) \cap \mathbf{SL}(n, \mathbb{R})$$

Proposition: $\mathbf{Pd}(n, \mathbb{R})$ is an open subset of $\mathbf{Sym}(n, \mathbb{R})$.

exponential

Proposition:

$$\exp : \mathbf{Sym}(n, \mathbb{R}) \rightarrow \mathbf{Pd}(n, \mathbb{R})$$

is a bijection.

Current note has 2 direct children and 2 total descendants.

- [squishy](#)
 - [Pd](#)
 - $\mathbf{Pd}(n, \mathbb{R})$
 - $GL(n, \mathbb{R}) \curvearrowright \mathbf{Pd}(n, \mathbb{R})$
 - [Horospherical decomposition of \$\mathbf{Pd}\(n, \mathbb{R}\)\$](#)

And it has 3 siblings.

- [squishy](#)
 - [Pd](#)
 - $\mathbf{Pd}(2, \mathbb{R})$
 - $\mathbf{Pd}(n, \mathbb{R})$
 - $\mathbf{SPd}(2, \mathbb{R})$