ⓘ Info

This note, that was found here, as a part of a collection
is written (completely with human hands) by Rupadarshi Ray,
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$SL(3,\mathbb{R})$

- simple group; trivial center
- exponential is *not* surjective

> **Proposition:**
>
> $$\underbrace{SO(3,\mathbb{R})}_{K} \times \underbrace{\left\{ \begin{bmatrix} a & & \\ & b & \\ & & c \end{bmatrix} \middle| \begin{matrix} a,b,c \in \mathbb{R}_{>0} \\ abc = 1 \end{matrix} \right\}}_{A} \times N(3,\mathbb{R}) \cong_{\mathsf{Man}} SL(3,\mathbb{R})$$
>
> Thus $SL(3,\mathbb{R})$ is diffeomorphic to $\mathbb{R}P^3 \times \mathbb{R}^5$.

Thus

$$\begin{array}{c} \widetilde{SL(3,\mathbb{R})} \\ \big\downarrow {\scriptstyle /\mathbb{Z}_2} \\ SL(3,\mathbb{R}) \end{array}$$

subgroups/extensions	quotient
$SO(3,\mathbb{R})$	symmetric space
A	
Heisenberg group $H(3,\mathbb{R}) = N(3,\mathbb{R})$	
$\widetilde{SL(3,\mathbb{R})}$	$\mathbb{Z}_2$

Current note has 0 direct children and 0 total descendants.

- squishy
  - SL
    - $SL(3,\mathbb{R})$

And it has 15 siblings.

- squishy
  - SL
    - SL(2)
    - $SL(2)(\mathbb{C})$
    - $PSL(n,\mathbb{C})$
    - $SL(2)(\mathbb{R})$
    - ${SL(2)(\mathbb{R})}/{SL(2)(\mathbb{Z})}$
    - H_q
    - $PSL(2)(\mathbb{Z})[2]$
    - $[PSL(2)(\mathbb{Z})[2], PSL(2)(\mathbb{Z})[2$]]
    - $PSL(2)(\mathbb{Z})[N]$
    - $SL(3,\mathbb{R})$
    - $SL(2)(\mathbb{Z})$
    - $PSL(2)(\mathbb{Z})$
    - Congruent subgroups of $PSL(2)(\mathbb{Z})$
    - $SL(n,\mathbb{Z})$
    - $SL(2)(\mathbb{Z}_2)$