Info

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Configuration space of N rigid points in $\mathbb{R}^3$

Configuration space of N rigid points in $\mathbb{R}^3$

Fix $d_{\{i,j\}} > 0$ for all $1 \leq i, j \leq N$. Then the configuration space of N rigid points in $\mathbb{R}^3$ with pairwise distances given by the fixed $\left\{d_{\{i,j\}} \middle| 1 \leq i, j \leq N\right\}$ is

$$\left\{(x_1, \ldots, x_N) \in (\mathbb{R}^3)^N \middle| \forall 1 \leq i, j \leq 3, \|x_i - x_j\|_{\mathbb{R}^N} = d_{\{i,j\}}\right\}$$

Proposition: For $N > 2$, the subspace of $(\mathbb{R}^3)^N$

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is homeomorphic to

$$O(3, \mathbb{R}) \times \mathbb{R}^3$$

Current note has 0 direct children and 0 total descendants.

- stretchy
  - Configuration space of N rigid points in $\mathbb{R}^3$

And it has 62 siblings.

- stretchy
  - Trefoil 3_1 knot
  - The only compact connected Lie group that can act faithfully on a torus is itself
  - Hecke algebras
  - $\overline{B^n}$
  - $\mathrm{BS}(1,2)$
  - $(\mathbb{C}, +, \times)$
  - $D^* := D \setminus \{0\}$
  - Cantor set
  - Configuration space of N rigid points in $\mathbb{R}^3$
  - Free groups
  - $GL(2)(\mathbb{Z}) \curvearrowright T^2$
  - H_2^3
  - $[a, b]$
  - Figure 8 knot
  - Lamplighter group on $\mathbb{Z}_2$
  - $\beta\mathbb{N}$
  - $\#_2\mathbb{R}P^2$
  - $\prod_{i\in\mathbb{N}} \{1, \ldots, n_i\}$
  - $\mathbb{R}P^n$
  - $(\mathbb{Q}, +, \times, <)$
  - $\mathbb{Q}_{\hat{p}}$
  - $\overline{\mathbb{Q}}$
  - $\mathbb{Q}_{\text{constr}}$
  - $\mathbb{Q}(\xi_n)$
  - $\mathcal{O}_{\overline{\mathbb{Q}}}$
  - $(\mathbb{R}, +, \times, <, \sup)$
  - Homeomorphism of $\mathbb{R}^2$ that sends $\mathbb{N}$ to a countable closed discrete subset
  - $\mathbb{R}^2 \times S^1$
  - $\mathbb{R}^n$
  - $\mathbb{R} \times S^1$
  - $\mathbb{R} \times S^2$
  - S^1
  - $S^1 \wedge S^1$
  - $S^1 \times S^n$
  - S^2 and $\mathbb{C}\boldsymbol{P}^1$
  - Mapping torus of the antipodal map of S^2
  - S^3
  - S^n
  - I-bundle
  - Symmetric group
  - $\mathbb{T}$
  - T^2
  - T_g^2
  - $T_{0,0,3}^2$
  - $\mathbb{R}^2 \setminus \{0\}$
  - Three $T_{1,0,1}^2$-glued at their boundaries

- $T^2_{1,1,0}$
- T^2_2
- $T^2_g \times [0,1]$
- $\#_{\mathbb{N}} T^2$
- Thompson's group
- T^n
- 3-valent tree
- 4-valent tree
- $[0,1]^{\mathbb{N}}$ with product topology
- Whitehead manifolds
- $\mathbb{Z}$
- $\mathbb{Z}[\sqrt{m}]$
- $\mathbb{Z}[X]$
- $\mathbb{Z}^{\mathbb{N}}$
- $\mathbb{Z}[i]$
- $\mathbb{Z}[i\sqrt{5}]$