Lecture 6 Lie group

We have seen some elements in Lie group so far.

- Definition & examples

  $GL(n;\mathbb{R})$ or $GL(n;\mathbb{C})$, $SL(n,\mathbb{R})$, $O(n)$, $Sp(2n)$, S^3, $\mathbb{R}^n$, T^n, ...

- Lie group homomorphism $\varphi: F \to G$

  Global constant rank ($\Rightarrow$ smooth group isomorphism implies diffeo.)

- Lie subgroup (as an embedded submfd)

  $O(n) \hookrightarrow GL(n,\mathbb{R})$ or $S^3 \hookrightarrow \mathbb{R}^4 \setminus \{0\}$

To be explored:

G + vector field, differential form, integration