6. The group $G_{ISO}^{-\infty}$:

$$A = Id + B \in Id + \Psi_{ISO}^{-\infty}(n)$$

invertible $\Leftrightarrow$ $\det A \neq 0$.

$$GL(N) \hookrightarrow GL(N+1) \cdots \hookrightarrow G_{ISO}^{-\infty}(n)$$

stabilized.

- Union is dense.

- $\frac{d}{ds} \det(A(s)) = \det(A(s)) \cdot Tr\left(A(s)^{-1} \cdot \frac{dA(s)}{ds}\right)$

  $\frac{dA(s)}{ds}$ in $\Psi_{ISO}^{-\infty}$

i.e. $\frac{d}{ds} \log \det A(s) = Tr\left(A(s)^{-1} \frac{dA}{ds}\right)$.