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0.1 Special unitary groups $SU(n, F)$

The special unitary group, $SU(n, F)$, is the subgroup of $U(n, F)$ where the determinants are 1.

That is, $|M| = 1$

0.1.1 The determinant of unitary matrices

The determinant of the unitary matrices is:

$$\det U^* = \det U^{-1}$$

$$(\det U)^* = \frac{1}{\det U}$$

$$(\det U)^* \det U = 1$$

$$||\det U|| = 1$$