

 Info

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on February 26, 2024 10:52:37 AM, was last modified on June 15, 2025 1:44:53 PM, and was exported on September 7, 2026 2:50:31 PM.

$$\mathbb{C}P^n$$

#wiki/Man/R/n

 Definition. $\mathbb{C}P^n$

- compact Kahler manifold with Fubini-Study metric
- Homogeneous Riemannian manifold
- smooth verities: smooth submanifold of $\mathbb{C}P^n$ that's root of some (finite set of?) homogeneous polynomial on $\mathbb{C}^{n+1}$
- tautological line bundle from

$$\mathbb{C}^{n+1} \rightarrow \mathbb{C}P^n$$

- holomorphic
- Hermitian metric
- Chern connection
 - curvature $\rightarrow$ symplectic structure

 The automorphism group of $\mathbb{C}P^n$ - either as a algebraic variety or as a complex manifold - is the group >

$$PGL_{\mathbb{C}}(n+1)$$

Current note has 0 direct children and 0 total descendants.

- [squishy](#).
 - $\mathbb{C}P^n$

And it has 30 siblings.

- [squishy](#).
 - $SL(2)(\mathbb{R}) \curvearrowright \mathbb{R}^2$
 - $SL(2)(\mathbb{R}) \curvearrowright H^2_{\mathbb{U}}$
 - $\text{Mat}_{\mathbb{C}}(2)$
 - $A_{r,\cdot} \langle z \mapsto \lambda z \rangle \backslash \mathbb{R}H^2_{\mathbb{U}}$
 - $\mathbb{C} \setminus \{0\}, \cdot \langle z \mapsto z+1 \rangle \backslash \mathbb{R}H^2_{\mathbb{U}}$
 - $\mathbb{C} \setminus \{0,1\}, \cdot \text{--} PSL(2)(\mathbb{Z})[2] \backslash \mathbb{R}H^2_{\mathbb{U}}$
 - $\mathbb{R} \ltimes_{\theta} \mathbb{C}^2$
 - $\boldsymbol{CI}(\mathbb{R}^n, \langle \cdot, \cdot \rangle_{0,n})$
 - $\mathbb{C}^n$
 - $U(\mathbb{C} \setminus \{0\})$
 - $PSL(2)(\mathbb{C}) \curvearrowright \mathbb{C}P^1 \cong_{\text{Man}} S^2$
 - $\mathbb{C}P^n$
 - [Farey_graph_complex and tree](#)
 - GL
 - [Heisenberg_group](#)
 - [Incomplete_hyperbolic_polygon_mod_side-pairing](#)
 - $\mathbb{R}H^2, \text{--} \mathbb{R}H^2_{\mathbb{U}}, \text{--} D^2$
 - $\mathbb{R}H^n$
 - [D_n_lattice](#)
 - [Matrices](#)
 - $\text{Mat}_{\mathbb{R}}(2)$
 - [Mobius_endomorphisms](#)
 - [Elementary_group_with finite and infinite sided Dirichlet polyhedra](#)
 - [Polynomials](#)
 - $T^*S^1 \not\cong_{\text{Sym}} (\mathbb{R}^2 \setminus \{0\}, dx \wedge dy)$
 - $Z\left(\sum_{1 \leq j \leq n} z_j^2 - 1\right)(\mathbb{C}) \cong_{\text{Sym}} T^*S^{n-1}$
 - SL
 - SO
 - [Seifert–Weber dodecahedral 3-manifold](#)
 - $U(n, \mathbb{C})$