Info

This note, that was found here, as a part of a collection
is written (completely with human hands) by Rupadarshi Ray,
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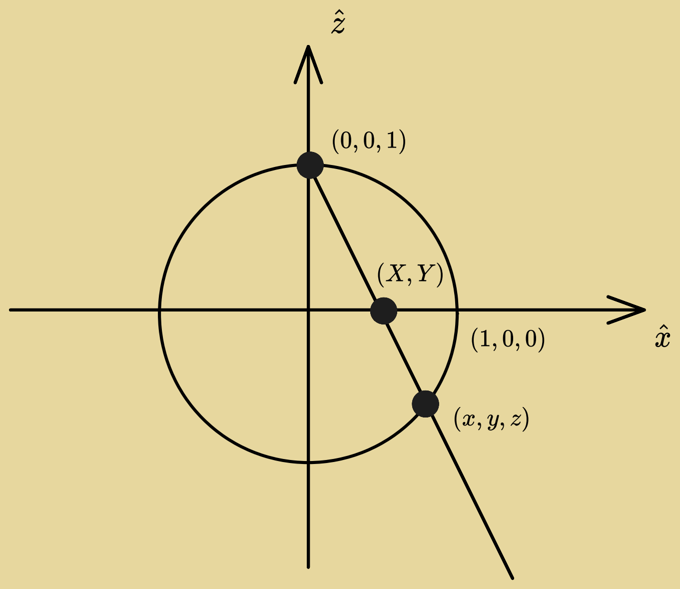
Stereographic coordinates on the sphere S^2

The map



$$S^2 \setminus \{(0,0,1)\} \to \mathbb{R}^2$$
$$(x,y,z) \mapsto (X,Y) := \left(\frac{x}{1-z}, \frac{y}{1-z}\right)$$

is a homeomorphism.

The area form is

$$\frac{4}{(1+X^2+Y^2)^2} \mathrm{d}X \wedge \mathrm{d}Y$$

The metric is

$$\frac{4}{(1+X^2+Y^2)^2} (\mathrm{d}X \otimes \mathrm{d}X + \mathrm{d}Y \otimes \mathrm{d}Y)$$

Current note has 0 direct children and 0 total descendants.

- stretchy
  - S^2 and $\mathbb{C}\boldsymbol{P}^1$
    - Stereographic coordinates on the sphere S^2

And it has 10 siblings.

- stretchy
  - S^2 and $\mathbb{C}\boldsymbol{P}^1$
    - Almost complex structure on S^2 induced from spherical metric and its area form
    - Borsuk-Ulam theorem
    - Cylindrical coordinates on S^2
    - Holomorphic vector bundles on $\mathbb{C}\boldsymbol{P}^1$
    - Round metric on S^2
    - The area form on round S^2
    - Stereographic coordinates on the sphere S^2
    - TS^2
    - Vector fields on S^2
    - Hamiltonian flows on the sphere S^2