
POLYPTYCH ISOTROPY WEIGHTS

GENERAL NOTES

ABSTRACT

Calculations for the isotropy data of the compactified hypertoric manifolds.

1 Example: $M = T^*\mathbb{CP}^1$

Short exact sequence for the usual Delzant construction of \mathbb{CP}^1 :

$$\{1\} \longrightarrow K \cong S^1 \xrightarrow{t \mapsto (t,t)} T^2 \xrightarrow[(a,b) \mapsto ab^{-1}]{\quad} T^2/K \cong T^1 \longrightarrow \{1\}.$$

The induced action of K on $T^*\mathbb{C}^2$ is thus

$$t \cdot (z|w) \mapsto (t, t) \cdot (z_1, z_2 | w_1, w_2) = (tz_1, tz_2 | t^{-1}w_1, t^{-1}w_2),$$

which is Hamiltonian with associated moment map

$$\mu_{\mathbb{R}} : T^*\mathbb{C} \longrightarrow \mathbb{R}; \quad \mu_{\mathbb{R}}(z|w) = |z_1|^2 + |z_2|^2 - |w_1|^2 - |w_2|^2.$$

For some $a \in \mathbb{Z}_{>0}$, take the hyperkähler quotient of $T^*\mathbb{C}$ to get

$$M := T^*\mathbb{C} \mathbin{/\!\!/} K$$

References