

- The manifold is T^4 .
- The coordinates (x_1, x_2, t, s) are $\mathbb{R}/2\pi\mathbb{Z}$ valued.
 - a) $g = dx_1^2 + dx_2^2 + e^{2u} dt^2 + e^{-2u} ds^2$ where u is a smooth function of (x_1, x_2) .
 - b) Orthonormal frame $e^1 = dx_1, e^2 = dx_2, e^t = e^u dt$ and $e^s = e^{-u} ds$.
- Christoffel symbols:
 - a) $de^t = -e^u dt \wedge (u_1 dx^1 + u_2 dx^2)$.
 - b) $\Gamma^{ta} = e^u u_a dt$.
 Likewise:
 - c) $\Gamma^{sa} = -e^{-u} u_a ds$.
- Curvature tensor in this frame (index a is from the set $\{1, 2\}$ and repeated index b is summed over this set):
 - a) $\mathcal{R}^{ta} = -(u_{ab} + u_a u_b) e^t \wedge e^b$.
 - b) $\mathcal{R}^{sa} = -(u_{ab} + u_a u_b) e^s \wedge e^b$.
 - c) $\mathcal{R}^{st} = u_b u_b e^t \wedge e^s$.
- Non-zero sectional curvatures:
 - a) $\mathcal{R}^{t1}_{t1} = -u_{11} - u_1^2$.
 - b) $\mathcal{R}^{t2}_{t2} = -u_{22} - u_2^2$.
 - c) $\mathcal{R}^{s1}_{s1} = u_{11} - u_1^2$.
 - d) $\mathcal{R}^{s2}_{s2} = u_{22} - u_2^2$.
 - e) $\mathcal{R}^{ts}_{ts} = u_1^2 + u_2^2$
- Products:
 - a) $\mathcal{R}^{t1}_{t1} \mathcal{R}^{s2}_{s2} = -(u_{11} + u_1^2)(u_{22} - u_2^2)$
 - b) $\mathcal{R}^{s1}_{s1} \mathcal{R}^{t2}_{t2} = -(u_{11} - u_1^2)(u_{22} + u_2^2)$.
 - c) $\mathcal{R}^{t1}_{t1} \mathcal{R}^{s2}_{s2} + \mathcal{R}^{s1}_{s1} \mathcal{R}^{t2}_{t2} = -2u_{11}u_{22} + 2u_1^2u_2^2$.
- Volume form: $dx_1 dx_2 dt ds$.
- Integral: $4\pi^2 \iint_{x^2 \in [0, 2\pi]} (-u_{11}u_{22} + u_1^2u_2^2) dx_1 dx_2$
- This is non-zero in the case when $u = \cos(x_1) + \cos(x_2)$.