

verif-eq-Tannery

October 18, 2020

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[1]: from sympy import *
      from sympy.interactive import printing
      from mpmath import j

      printing.init_printing(use_latex=True)
      u, t, du, dt = symbols('u t du dt')
      x = -j*cos(u)*cos(t)
      y = -j*cos(u)*sin(t)
      z = 1 - cos(u/2) + sin(u/2)
      dx = diff(x,u)*du + diff(x,t)*dt
      dy = diff(y,u)*du + diff(y,t)*dt
      dz = diff(z,u)*du + diff(z,t)*dt
      display(dx)
      display(dy)
      display(dz)
      ds2 = dx**2 + dy**2 + dz**2
      display(simplify(ds2))
```

$$1.0idt \sin(t) \cos(u) + 1.0idu \sin(u) \cos(t)$$

$$-1.0idt \cos(t) \cos(u) + 1.0idu \sin(t) \sin(u)$$

$$du \left(\frac{\sin\left(\frac{u}{2}\right)}{2} + \frac{\cos\left(\frac{u}{2}\right)}{2} \right)$$

$$-1.0dt^2 \cos^2(u) + 0.25du^2 \sin(u) + 1.0du^2 \cos^2(u) - 0.75du^2$$

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[ ]:
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