

# Streamlines @model

[@wikipedia](#)

Given velocity vector  $\vec{u} = (u_x, u_y, u_z)$  the [streamlines](#) is a bunch of curves  $\vec{r}_s = (x_s, y_s, z_s) \in \mathbb{R}^3$ , parametrized by real number  $s$ , and solving the following equation:

$$\frac{d\vec{r}_s}{dt} \times \vec{r}_s(t) = 0$$

or equivalently

$$\frac{dx_s}{u_x} = \frac{dy_s}{u_y} = \frac{dz_s}{u_z}$$