

$$\vec{L}(t)$$

$$\vec{\omega}(t)$$

$$m_i$$

$$\vec{v}_i(t)$$

$$\vec{r}_i(t)$$

S

The diagram shows a gray cylinder with a vertical dashed brown axis. A white arrow labeled $\vec{\omega}(t)$ points upwards along the axis, and a longer brown arrow labeled $\vec{L}(t)$ extends further upwards. Inside the cylinder, a small blue cube represents a particle of mass m_i . A red arrow labeled $\vec{r}_i(t)$ points from a white dot labeled S on the axis to the particle. A blue arrow labeled $\vec{v}_i(t)$ points away from the particle. A green dashed ellipse with arrows indicates rotation around the axis.