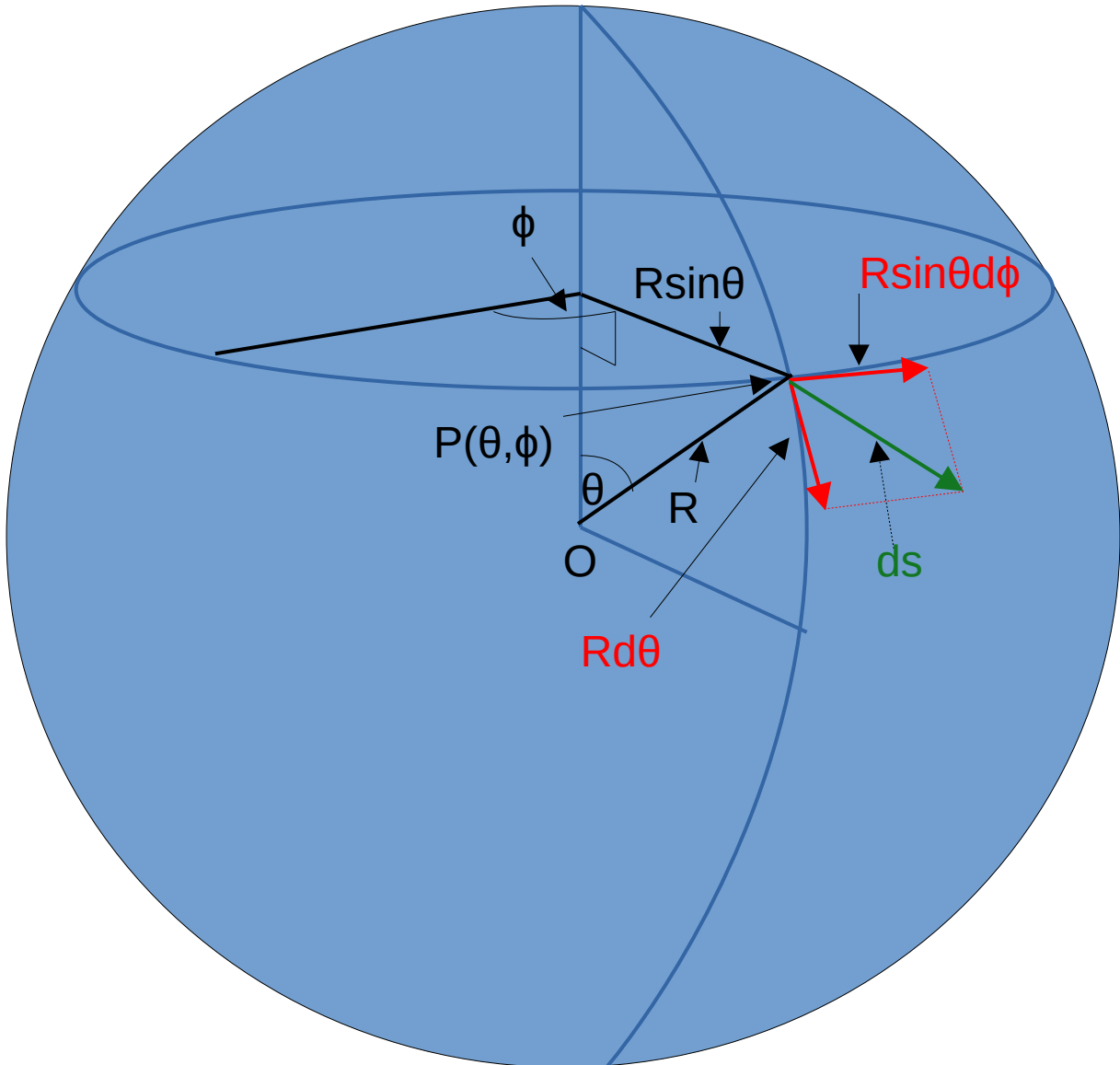


# The surface of a sphere

The metric for a line element  $ds$  on the surface of a sphere of radius  $R$



The line element  $ds$ , and its components  $R \sin \theta d\phi$  and  $R d\theta$ , are infinitely small, and are perpendicular to the radius  $R$  at the point  $P(\theta, \phi)$

$$ds^2 = R^2 d\theta^2 + R^2 \sin^2 \theta d\phi^2$$

$$ds = (R^2 d\theta^2 + R^2 \sin^2 \theta d\phi^2)^{1/2}$$

