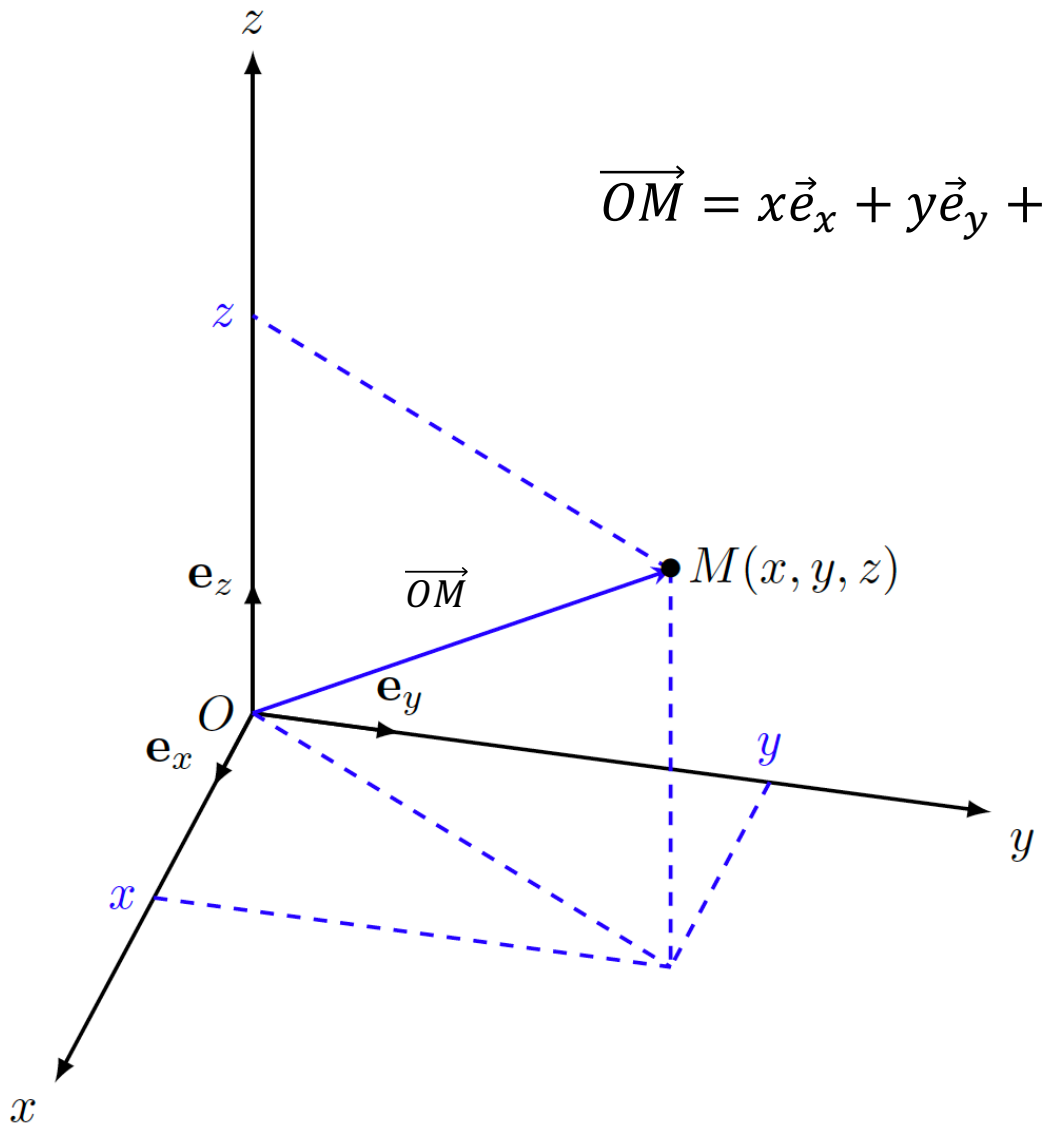
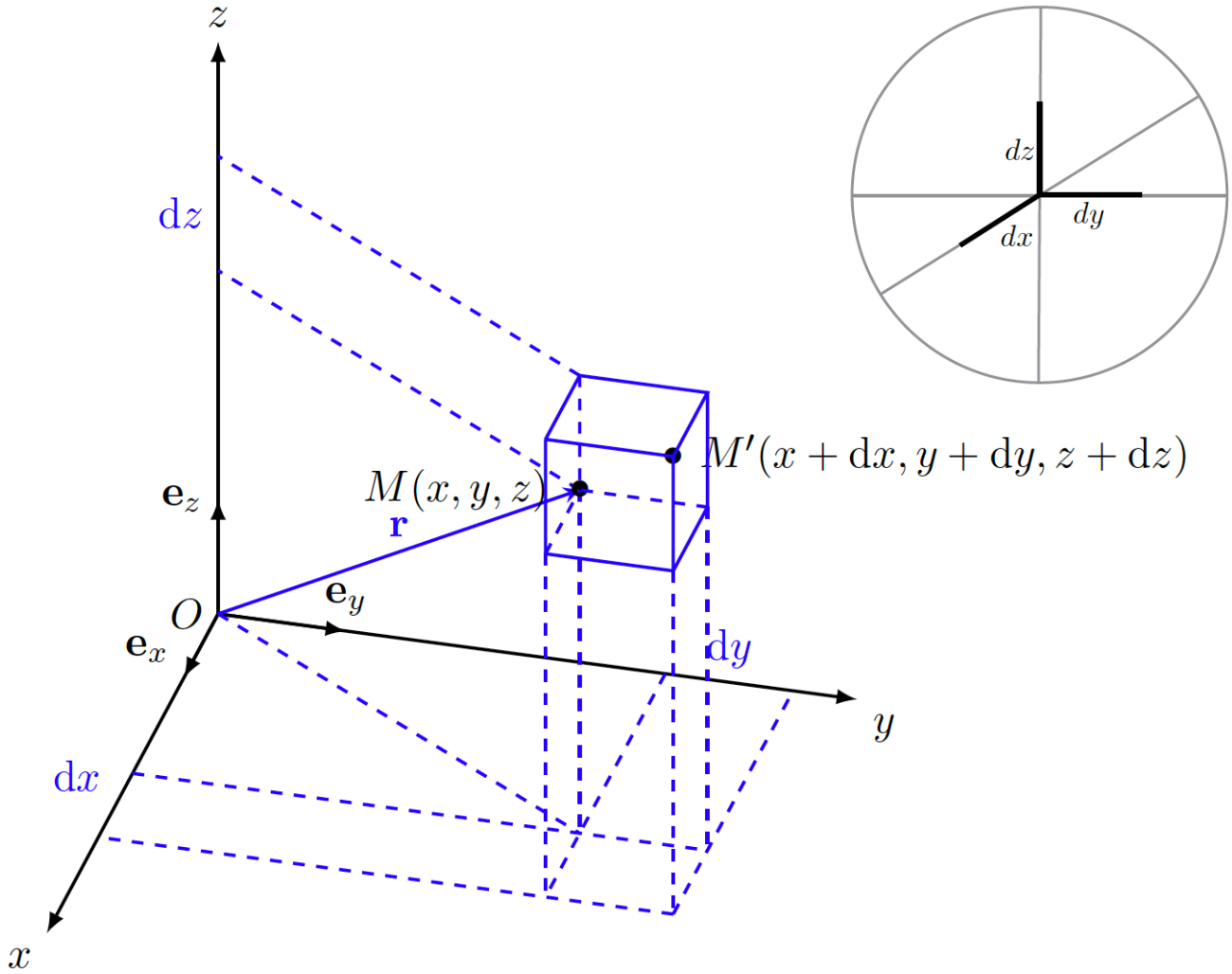
Systèmes de coordonnées

Coordonnées cartésiennes

$$\overrightarrow{OM} = x\vec{e}_x + y\vec{e}_y + z\vec{e}_z$$

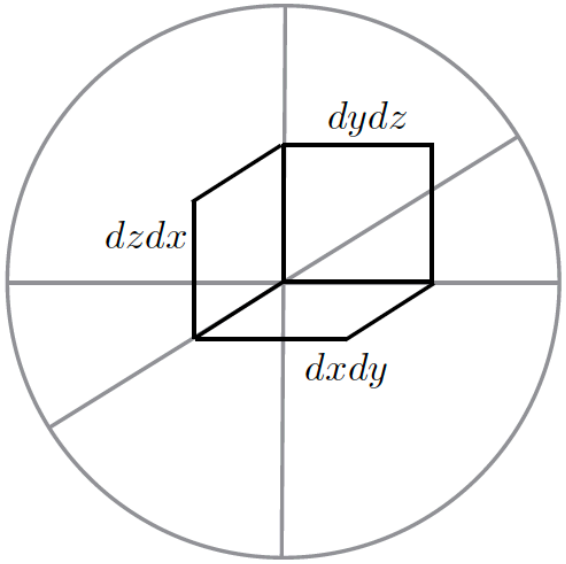


Coordonnées cartésiennes



$$\mathrm{d}\overrightarrow{OM} = dx\vec{e}_x + dy\vec{e}_y + \mathrm{d}z\vec{e}_z$$

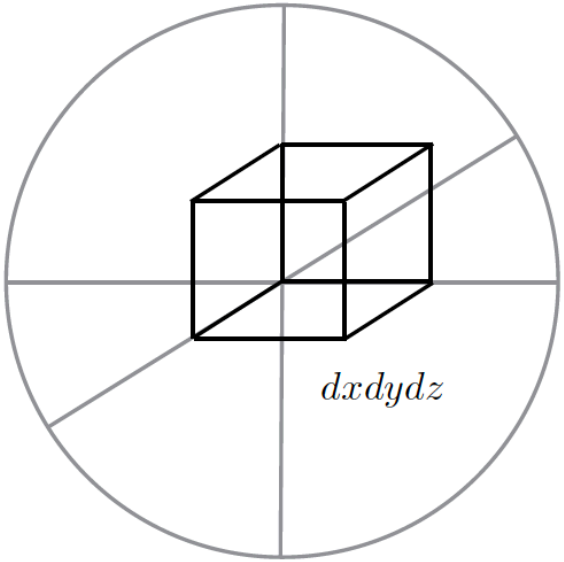
Coordonnées cartésiennes



$$dS_x = dydz$$

$$dS_y = dxdz$$

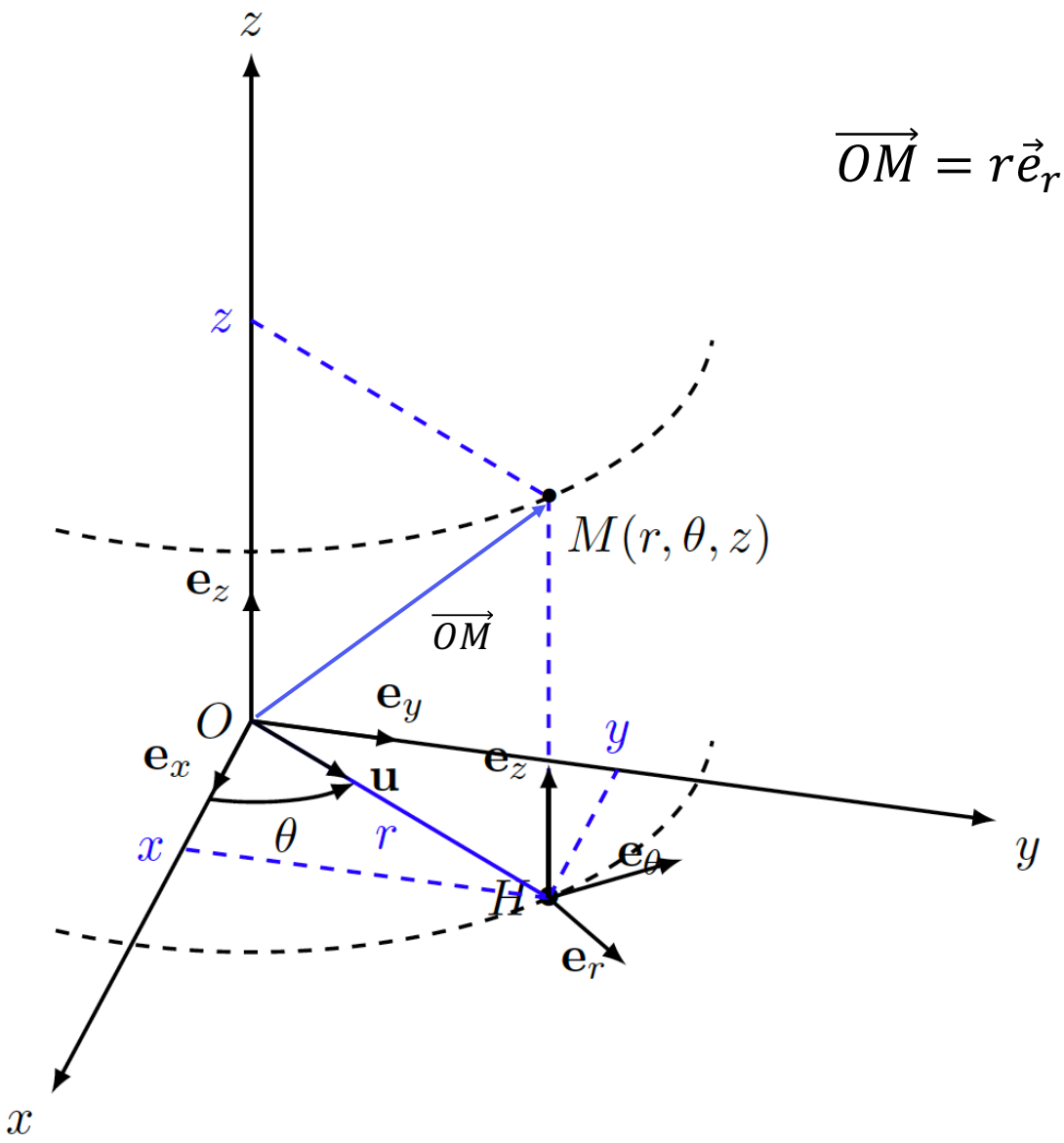
$$dS_z = dxdy$$



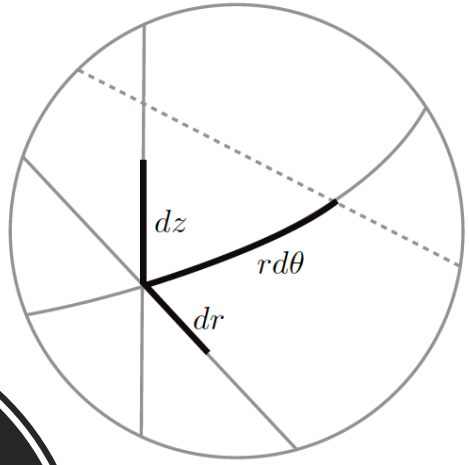
$$d\tau = dxdydz$$

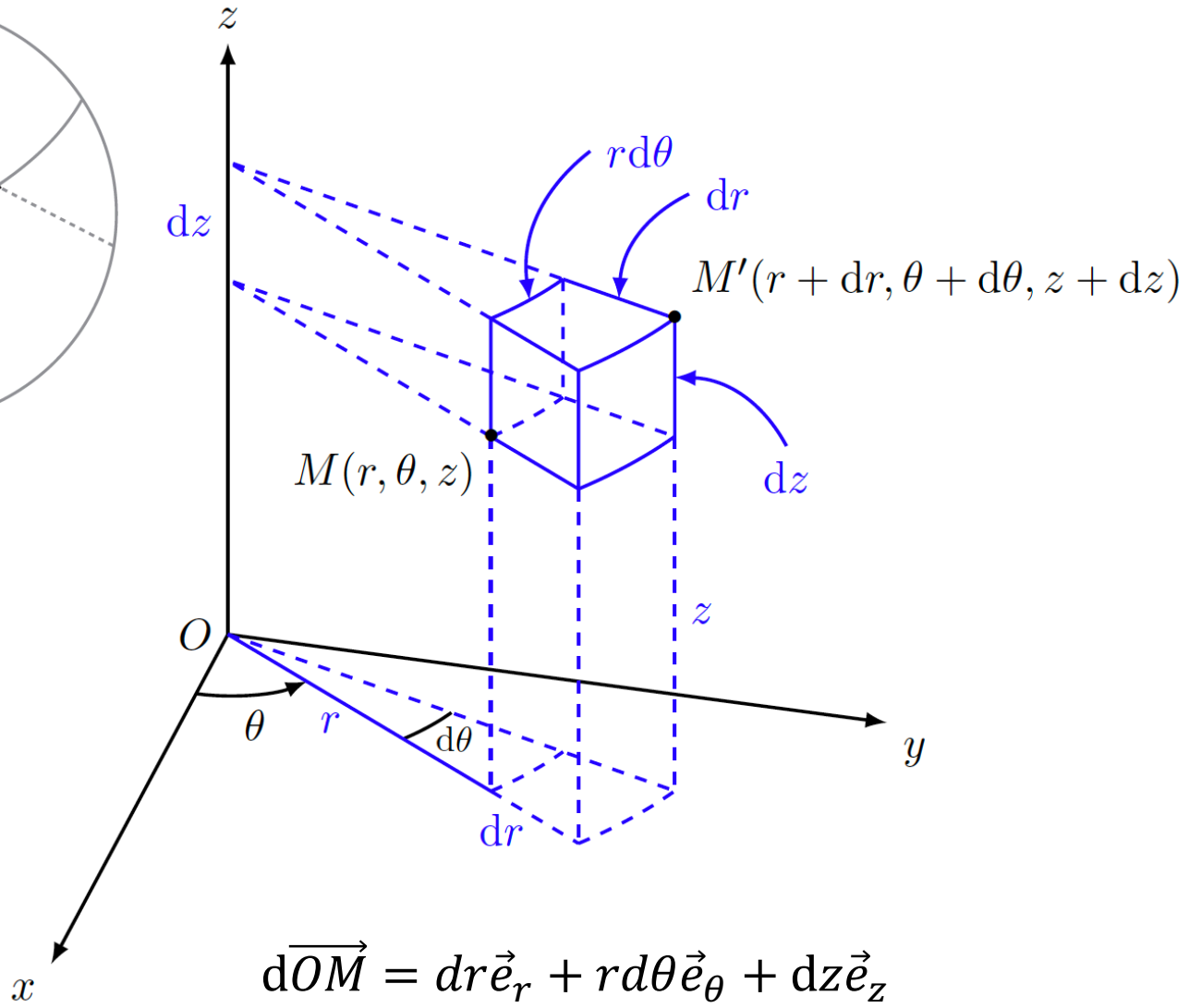
Coordonnées cylindriques

$$\overrightarrow{OM} = r\vec{e}_r + z\vec{e}_z$$



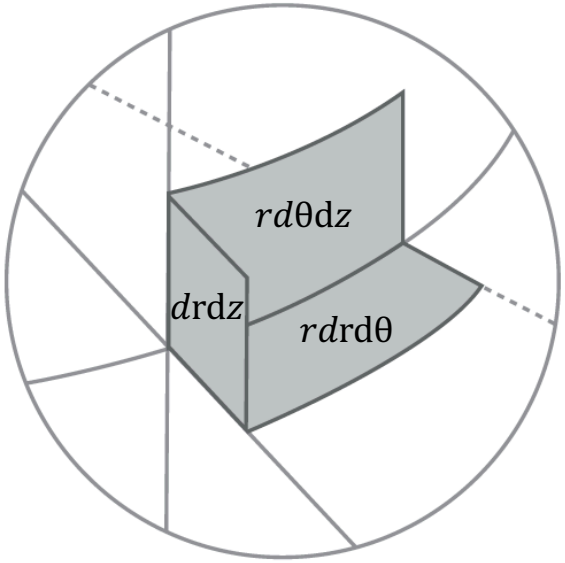
Coordonnées cylindriques





$$\mathrm{d}\overrightarrow{OM} = dr\vec{e}_r + rd\theta\vec{e}_\theta + \mathrm{d}z\vec{e}_z$$

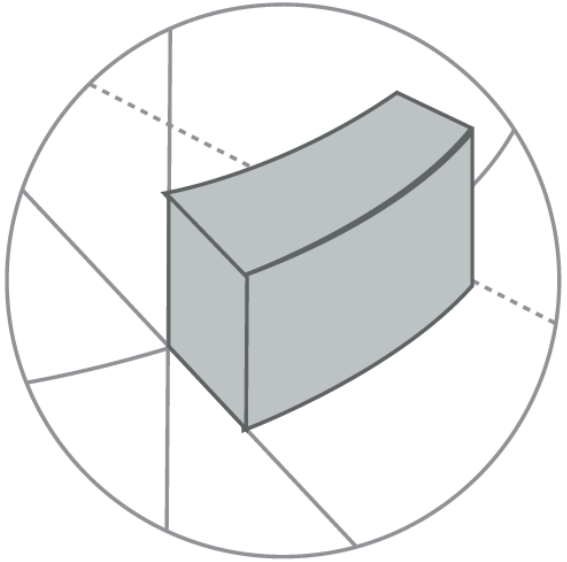
Coordonnées cylindriques



$$dS_r = rd\theta dz$$

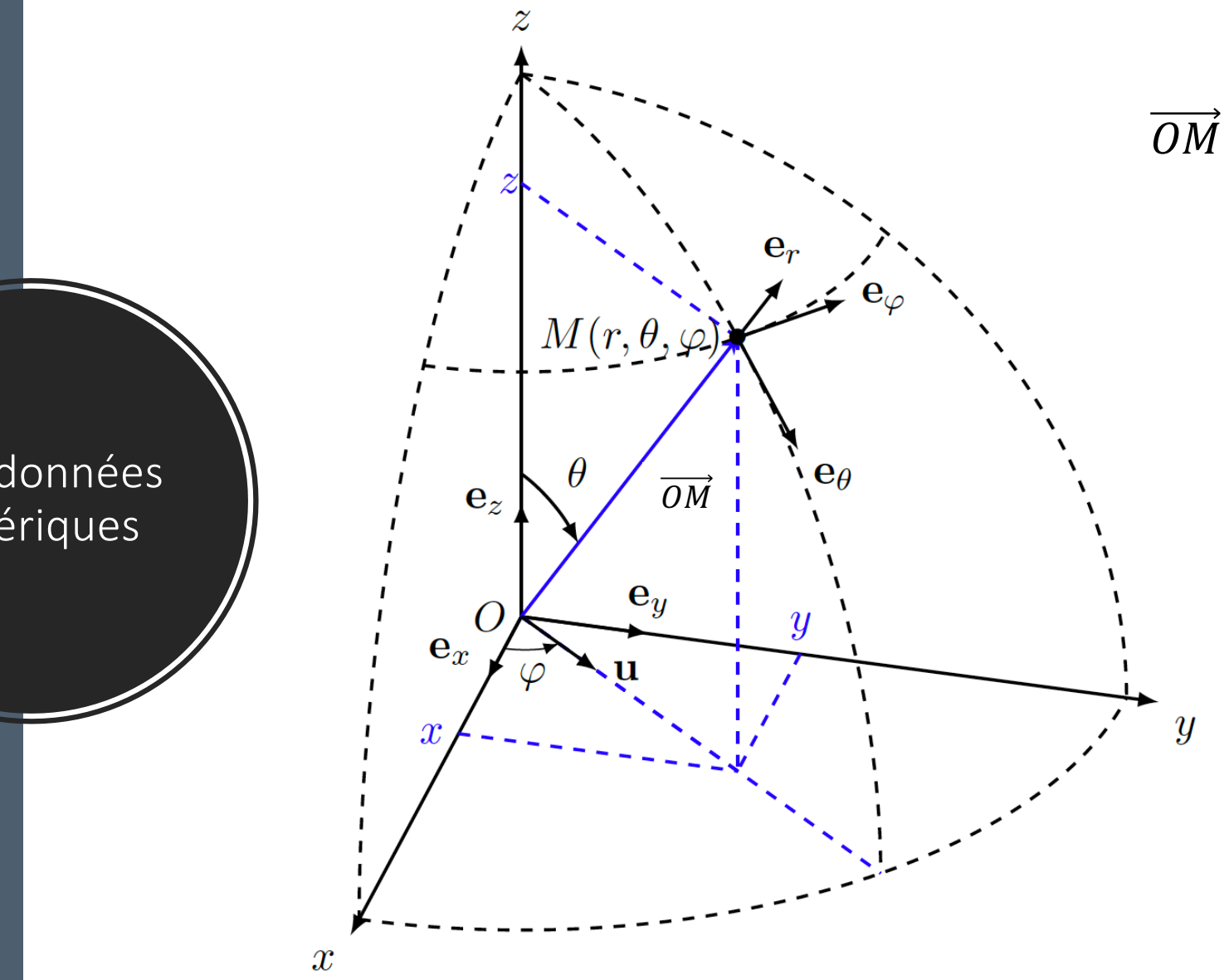
$$dS_\theta = drdz$$

$$dS_z = rdrd\theta$$



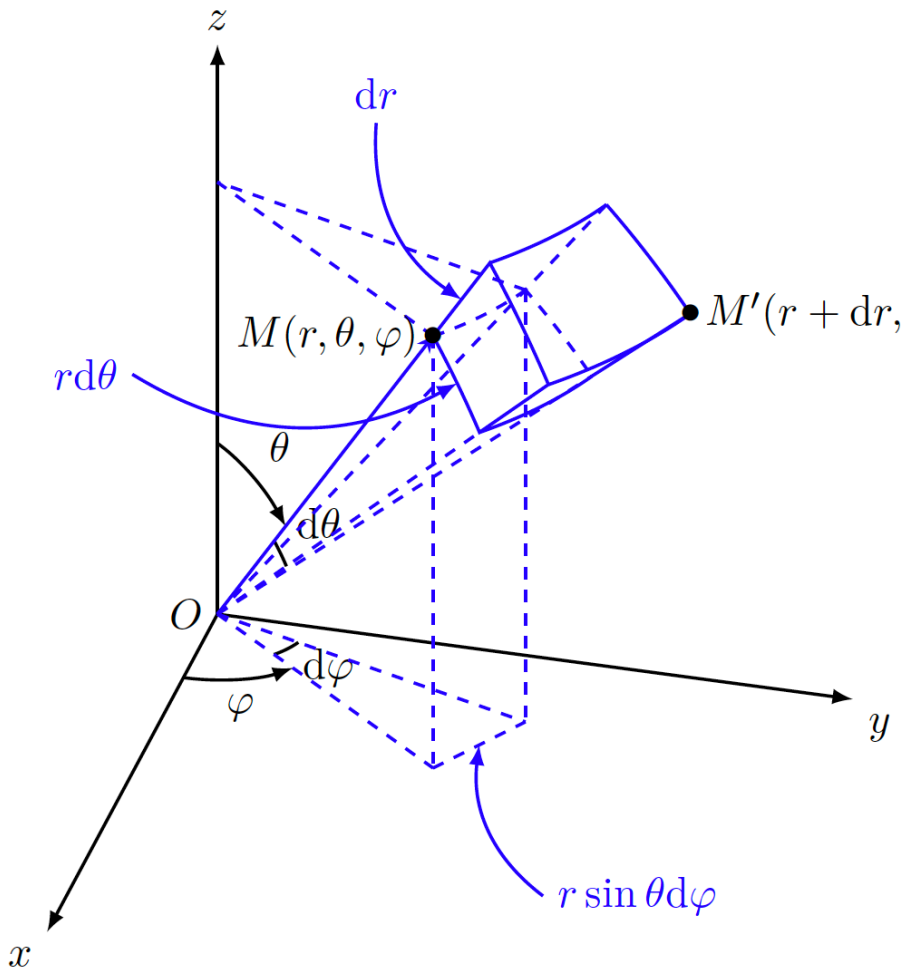
$$d\tau = rdrd\theta dz$$

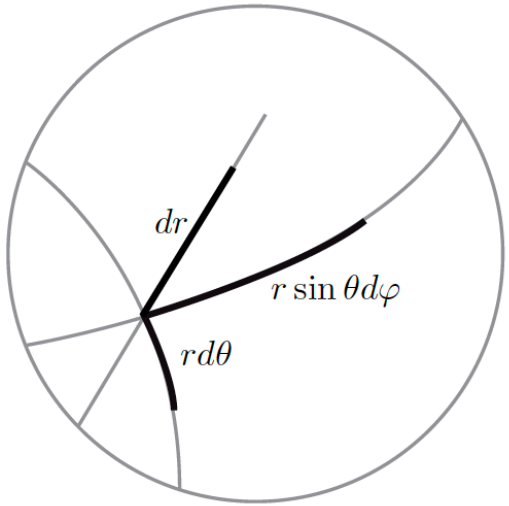
Coordonnées sphériques



$$\overrightarrow{OM} = r\vec{e}_r$$

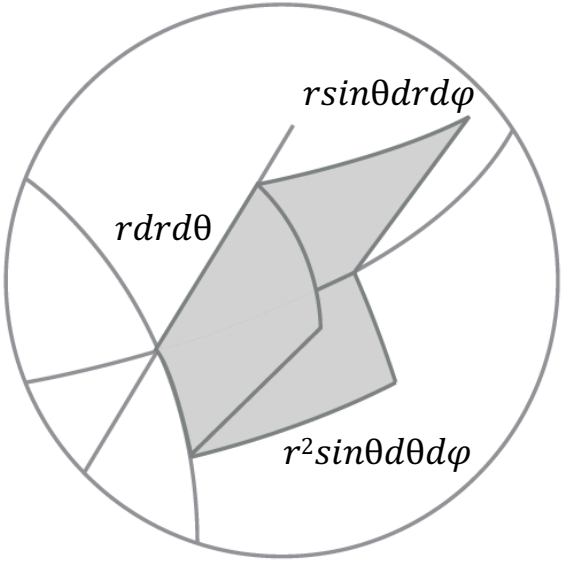
Coordonnées sphériques





$$\mathrm{d}\overrightarrow{OM} = dr\vec{e}_r + rd\theta\vec{e}_\theta + rsin\theta d\varphi\vec{e}_\varphi$$

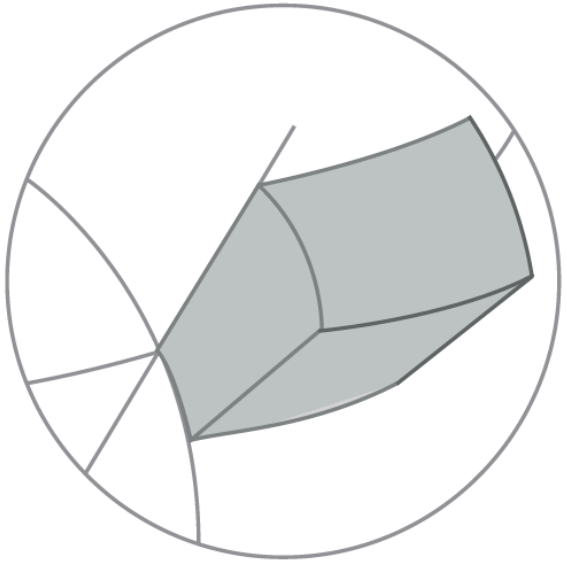
Coordonnées sphériques



$$dS_r = r^2 sin\theta d\theta d\varphi$$

$$dS_\theta = rsin\theta dr d\varphi$$

$$dS_\varphi = rdrd\theta$$



$$d\tau = r^2 sin\theta drd\theta d\varphi$$