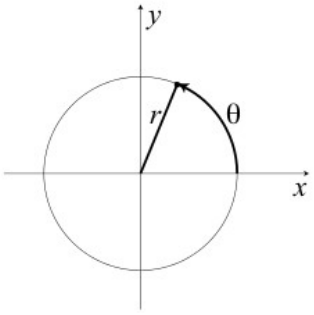
REPÉRAGE D'UN POINT

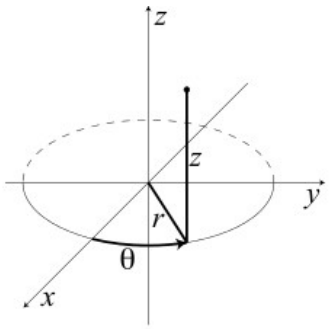
1) COORDONNÉES POLAIRES



$$\begin{aligned} x &= r\cos(\theta) \\ y &= r\sin(\theta) \end{aligned}$$

$$\begin{aligned} r &= \sqrt{x^2+y^2} \\ \theta &= \pm\arccos\left(\frac{x}{\sqrt{x^2+y^2}}\right) \end{aligned}$$

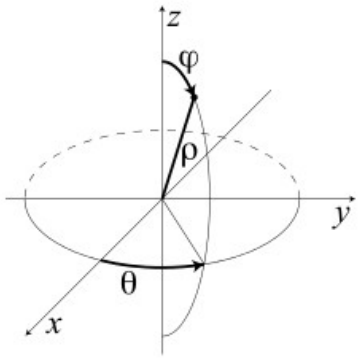
2) COORDONNÉES CYLINDRIQUES



$$\begin{aligned} x &= r\cos(\theta) \\ y &= r\sin(\theta) \\ z &= z \end{aligned}$$

$$\begin{aligned} r &= \sqrt{x^2+y^2} \\ \theta &= \pm\arccos\left(\frac{x}{\sqrt{x^2+y^2}}\right) \\ z &= z \end{aligned}$$

3) COORDONNÉES SPHÉRIQUES



$$\begin{aligned} x &= \rho\sin(\varphi)\cos(\theta) \\ y &= \rho\sin(\varphi)\sin(\theta) \\ z &= \rho\cos(\varphi) \end{aligned}$$

$$\begin{aligned} \rho &= \sqrt{x^2+y^2+z^2} \\ \theta &= \pm\arccos\left(\frac{x}{\sqrt{x^2+y^2}}\right) \\ \varphi &= \arccos\left(\frac{z}{\sqrt{x^2+y^2+z^2}}\right) \end{aligned}$$

Remarques : $r \geq 0, \quad \rho \geq 0, \quad -\pi \leq \theta \leq \pi, \quad 0 \leq \varphi \leq \pi.$