About angle

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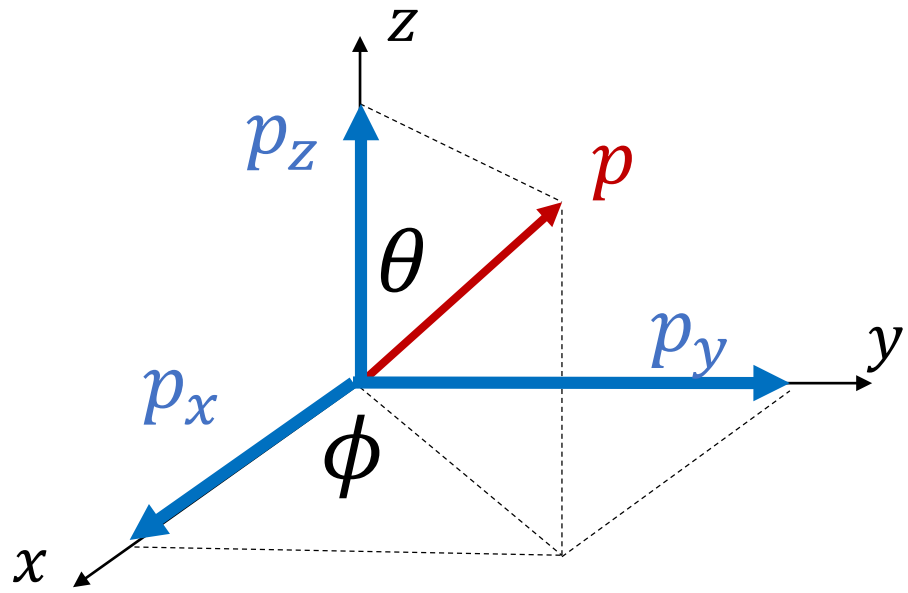
$$p_z = p\ \cos\theta \quad (1)$$
$$p_x = p\ \sin\theta\cos\phi \quad (2)$$
$$p_y = p\ \sin\theta\sin\phi \quad (3)$$



$$x' = \frac{p_x}{p_z} \quad (4)$$

$$y' = \frac{p_y}{p_z} \quad (5)$$

(1) (2) (4) → $$\cos\phi = \frac{p_x}{p\sin\theta} = \frac{p_z x'}{p\ \sin\theta} = \frac{x'}{\tan\theta} \quad (6)$$

(1) (3) (5) → $$\sin\phi = \frac{p_y}{p\sin\theta} = \frac{p_z y'}{p\ \sin\theta} = \frac{y'}{\tan\theta} \quad (7)$$

(6), (7) and $(\cos^2\phi + \sin^2\phi = 1)$

→ $$\frac{x'^2}{\tan^2\theta} + \frac{y'^2}{\tan^2\theta} = 1$$ → $$\tan^2\theta = x'^2 + y'^2$$ → $$\boxed{\tan\theta = \sqrt{x'^2 + y'^2}}$$