

PENDULUM ANGLE CALCULATION DPR

Note Title

.4.9.2010

$$T = 2\pi \sqrt{\frac{l}{g}} ; T = 2\pi \sqrt{\frac{l}{g}} \left(1 + \frac{1}{4} \sin^2\left(\frac{\alpha}{2}\right)\right) \Rightarrow$$

$$\Rightarrow \frac{T}{2\pi \sqrt{\frac{l}{g}}} = 1 + \frac{1}{4} \sin^2\left(\frac{\alpha}{2}\right) \Rightarrow \frac{2T}{\pi \sqrt{\frac{l}{g}}} - 4 = \sin^2\left(\frac{\alpha}{2}\right) \Rightarrow \sqrt{\left| \frac{2T - 4\pi \sqrt{\frac{l}{g}}}{\pi \sqrt{\frac{l}{g}}} \right|} = \sin\left(\frac{\alpha}{2}\right)$$

$$\Rightarrow 2 \cdot \arcsin\left(\sqrt{\left| \frac{2T - 4\pi \sqrt{\frac{l}{g}}}{\pi \sqrt{\frac{l}{g}}} \right|}\right) = \alpha$$

← FORMULA ZA KUT
12 PERIODA

12 mjerenja: 188 bpm $\Rightarrow$ 188 bits per 60 sec $\Rightarrow$ 3,13 bps (Hz)

$$l = 10,5 \text{ cm} = 105 \cdot 10^{-3} \text{ m}$$

$$g \approx 9,81 \text{ m/s}^2$$

$$T = 319,5 \text{ ms}$$

$$\alpha = 91,06^\circ$$

- potpuni otklon

$\downarrow$
45,53° (lego sa 2 coils at 4,8 V)