

PEU 405 Participation 1

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14. February 2025

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1 11.11

1.1 Parameters used in the model

$$r_0 = 50$$

$$r_{1/2} = 50$$

$$r_1 = 50$$

$$\phi_0 = 0$$

$$l_c = \frac{r_{1/2}}{\sqrt{r_{1/2} - 3}}$$

$$\tau_c = 2\pi \frac{r_{1/2}^2}{l_c}$$

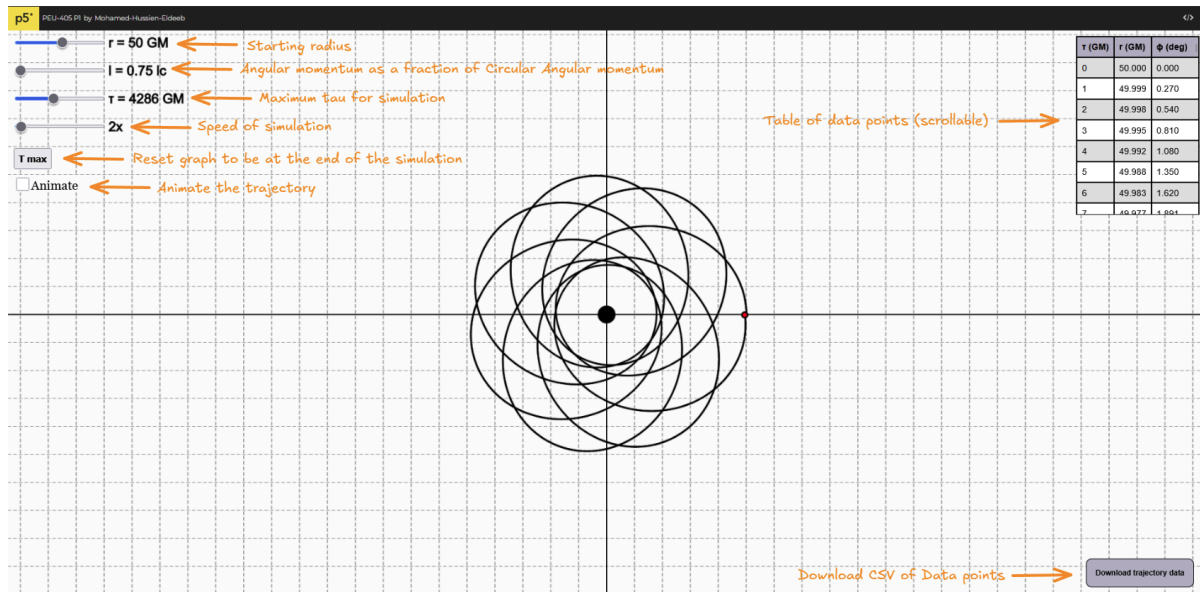
$$\Delta\tau = \frac{\tau_c}{500}$$

$$l = 0.75 \times l_c$$

$$r_{n+1} = 2r_n - r_{n-1} + \Delta\tau^2 \left(-\frac{1}{r_n^2} + \frac{l^2}{r_n^3} - \frac{3l^2}{r_n^4} \right)$$

$$\phi_{n+1} = \phi_n + \Delta\tau \frac{l}{\left[\frac{1}{2}(r_{n+1} + r_n) \right]^2}$$

1.2 Implementation



preview: <https://editor.p5js.org/Mohamed-Hussien-Eldeeb/full/nMFTr9r4V>

code: <https://editor.p5js.org/Mohamed-Hussien-Eldeeb/sketches/nMFTr9r4V>

References

- [1] M. El-Deeb, “PEU-405 Assignments.” [Online]. Available: <https://github.com/mhdeeb/peu-assignments/tree/main/peu-405>