Project 3 FYS4150

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Abstract

The program used in this project can be found at Github.

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1 Introduction

2 Theory

Scaling:

$$a = \frac{v^2}{r} = \frac{F}{M_E} = \frac{GM_S}{r^2} \implies v^2 r = GM_o$$

Need:

Initial: y^0, x^0

Initial: v_y^0, v_x^0

$$x^{i+1} = x^i + \Delta t v_x^i$$

$$y^{i+1} = y^i + \Delta t v_y^i$$

$$v_x^{i+1} = v_x^i + \Delta t a_x^i$$

$$v_y^{i+1} = v_y^i + \Delta t a_y^i$$

$$a_x^{i+1} = -\frac{4\pi^2}{r^3} x_i$$

$$a_y^{i+1} = -\frac{4\pi^2}{r^3} y_i$$

3 Method

4 Result

5 Discussion

6 Conclusion

References