

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, February 20
2:00 – 3:00 PM
Maria Sanford, Room 101

A SMALL VARIATION OF THE TAYLOR METHOD AND PERIODIC SOLUTIONS OF THE THREE BODY PROBLEM

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Abstract: In this talk we define a small variation of the Taylor method to solve ordinary differential equations and also, we prove a formula for the global error of this new numerical method that allow us to keep track of the round-off error and does not require previous knowledge of the exact solution. As an application, we provide a sketch for a rigorous proof of the construction/existence of a reduced periodic solution of the three-body problem.

Some explanation for the three body problem can be found at http://www.scholarpedia.org/article/Three_body_problem.

Some images for one of the solutions that the speaker has found can be viewed at <https://www.youtube.com/watch?v=PtEMb6Rvflg>.

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