Predictor Corrector Research and Notes

Predictor corrector methods belong to a class of algorithms with the purpose of integrating ordinary differential equations to find an unknown function that satisfies a given differential equation. -Wiki description

There are two steps for the predictor-corrector:

1) Prediction - take an equation based on the previous set of points (function values and derivative values to predict the new point
2) Corrector - improves the first steps prediction by using a different method with it to interpolate the new point

Example of Predictor Corrector Method Using Euler Trapezoidal Method
We plan to use RK 45 for the final version

Predictor: $y^{p}_{n+1} = y_n + h\, f(y_n\ ,\ t_n)$

Corrector: $y_{n+1} = y_n\ +\ \frac{h}{2}[f(y^{p}_{n+1}\ ,\ t_{n+1})\ +\ f(y_n\ ,\ t_n)]$

y^{p}_{n+1} : *the predicted value is being used in the corrector*