The implementation of general linear methods

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Numerical integrators for solving stiff and non-stiff problems are usually based on either multistage methods or multistep methods and each of these has its own advantages and disadvantages. In this project, we will use general linear methods (GLMs) which have the potential to provide the best features from each of the traditional classes. A special design choice amongst GLMs will be presented in this talk, whose main features are the IRKS- and F-properties. Also, there are some difficult design issues in the implementation of classical methods. These include error estimation and step size and order control. There is still considerable theory to investigate and analyse, but we believe that GLMs are likely to provide good solutions. Although, the main aim of our project is to construct an algorithm for both stiff and non-stiff systems, here the implementation of some low order explicit methods of the design proposed will be presented in the form of a preliminary algorithm.