

”Discretization and Rounding Errors: ODE’s and beyond”

Numerical solution of real-world problems is a complex process combining tools from various areas of applied mathematics and computer science. Such process inevitably introduces various types of errors that need to be understood and, hopefully, controlled. The talk discusses the role the discretization and rounding errors: the former arise when numerical model is set to approximate the general mathematical model and the latter further along the road when the actual computational process is carried on. Both types contribute to the total error and absence of their proper integration (including mutual relationship!) into the error analysis of the whole solution process may cause grave consequences. The situation is well understood for the ODE’s and both empirical and analytical evidence suggest that same or similar principles hold for general several variables integro-differential equation model.

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