**Adi Ditkowski**
*Tel Aviv University*

# Error inhibiting schemes for differential equations

Typically, when semi-discrete approximations to time-dependent partial differential equations (PDE) or schemes for ordinary differential equation (ODE) are constructed they are derived such that they are stable and have a specified truncation error Te. Under these conditions, the Lax-Richtmyer equivalence theorem assures that the scheme converges and that the error is, at most, of the order of Te.

In most cases, the error is in indeed of the order of Te. We demonstrate that schemes can be constructed, whose truncation errors are Te, however, the actual errors are much smaller. This error reduction is made by constructing the schemes such that they inhibit the accumulation of the local errors; therefore, they are called Error Inhibiting Schemes (EIS).