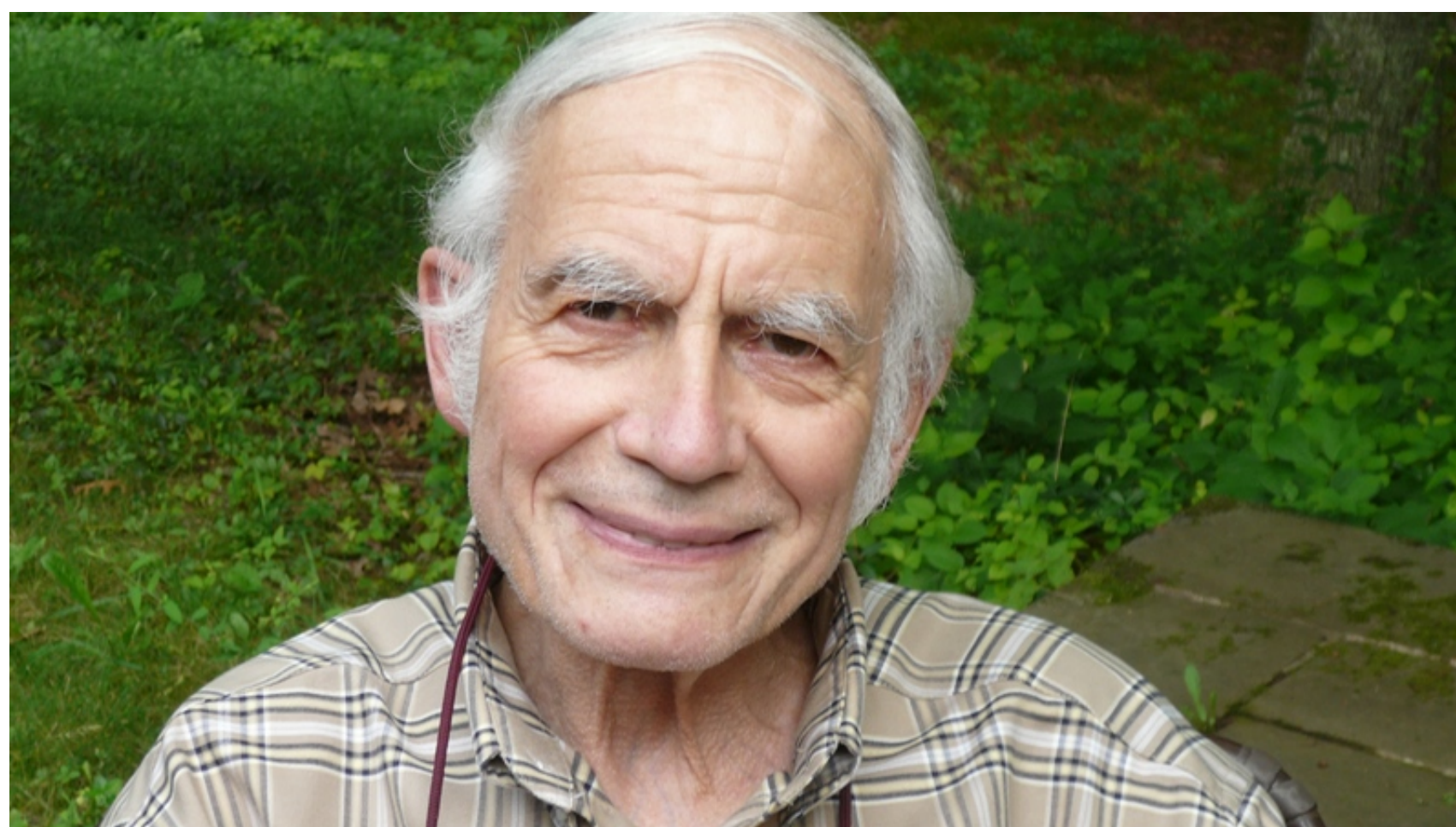




# Rawitscher Minicourse on Numerical Spectral Methods

March 18 - April 15, 2015

Instituto de Física Teórica - UNESP, São Paulo, Brasil



**Prof. George H. Rawitscher - U. Connecticut**

Spectral methods have been introduced in the 70's, but their power is not yet fully appreciated by the scientific community. The main difference from previous methods, such as finite difference and finite elements, is that the value of a function at all the mesh-points is taken into account simultaneously, while for the finite difference methods only three or five points are included at one time.

After some initial reminders about computational accuracy, the general properties of spectral methods will be described, based on the book by Lloyd. N. Trefethen "Spectral Methods in MATLAB" (SIAM, 2000). After that, various applications of the spectral method will be presented, with special emphasis to the solution of the one-dimensional Schroedinger equation.



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