Seminario Rubio de Francia

Conferencia

por

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Título:

The efficient and accurate solution of the 2D Schrödinger eigenvalue problem

Resumen: In this talk I will use constant perturbation (CP) methods to solve a 2D Schrodinger problem.

These CP methods were originally devised for the solution of the time-independent one-dimensional Schrödinger equation, but they have proven to be very efficient for different classes of Sturm-Liouville problems and they now form the basis of the very succesful Matlab package Matslise. Also for coupled channel Schrödinger equations CP-based codes have been developed, such as the Matlab-package Matscs and the Fortran program LILIX.

The CP methods can also be successfully applied to other types of problems. In this talk we present an improved version of the algorithm first formulated by Ixaru for the efficient and accurate solution of the eigenvalue problem of the 2D Schrodinger equation. To build this improved algorithm some of the above mentioned Matslise and Matscs algorithms had to be redesigned. This is the current Ph.D. work of Toon Baeyens.

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