

PAUL SCHERRER INSTITUT



Particle Theory Seminar

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PSI

“Variational Methods for Path Integral Scattering”

Thursday, April 09, 2009, 11:30 am

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Abstract:

A new approximation scheme to non-relativistic potential scattering is presented. The starting points are two exact path integral representations of the T-matrix, which permit the application of the Feynman-Jensen variational method. A simple Ansatz for the trial action is made, and, in both cases, the variational procedure singles out a particular one-particle classical equation of motion, given in integral form. While the first is real, in the second representation this trajectory is complex and evolves according to an effective, time dependent potential. Our results are then numerically tested in two particular situations where other approximations turned out to be unsatisfactory. Substantial improvements are found.