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Sebastian Steinhaus: Perfect discretization of path integrals

Thursday, 6 October 2011 15:00 (45 minutes)

In order to define a well-defined path integral, a discretization has to be employed. However, this discretization breaks the symmetry of the continuous system in general, e.g. diffeomorphism symmetry in GR. In this context, we discuss the parametrized (an)harmonic oscillator and show how to reobtain the contiuous symmetry in the discretized path integral. Furthermore the relation between discretization independence and reparametrization invariance is discussed. In the second part of the talk, we will demonstrate that requirering invariance under Pachner moves in Regge calculus defines an invariant amplitude for the (linearized) Regge gravity path integral.