"Loop Approach to Lattice Gauge Theories"

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Abstract: In this talk, I will discuss the `Prepotential formulation of lattice gauge theories' developed over the last decade. This is a useful reformulation of Hamiltonian LGT containing only local loop degrees of freedom at each lattice site. An additional Abelian Gauss law maps these local loop states to the original non-local Wilson loops. Being local, the Mandelstam constraints present in the over-complete loop basis can be solved exactly to find the exact and orthonormal loop basis and their dynamics at each site. Choosing only relevant loops makes the weak coupling regime accessible and will discuss an alternate proposal for the low energy spectrum of lattice gauge theory in this regime using loop formulation.