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Title: Revisiting Quantization of Gauge Field Theories: Sandwich Quantization Scheme

Abstract:
Quantization of field theories with gauge symmetry is an extensively discussed and well-established topic. In this short note, we propose a new viewpoint on the old problem. The gauge degrees of freedom have vanishing momenta, and hence their equations of motion appear as constraints on the system. We show that consistency of quantization necessitates imposition of these constraints as ``sandwich conditions'': The physical Hilbert space of the theory consists of all states for which the constraints sandwiched between any two physical states vanish. We briefly discuss some of the physical implications of the *sandwich quantization scheme*.