

Canonical Formulation of the Quantum Field
Theory of Electric and Magnetic Charge

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We have introduced recently a new formulation of the quantum field theory of electric and magnetic charge (1). We have quantized that formulation using Dirac's procedure of quantization of singular Lagrangians (2). In this method, the unphysical degrees of freedom are eliminated using constraints and fixing gauge conditions. In gauge theories it is often convenient to use Lagrangians with gauge-breaking terms (3). We quantize our theory using a Lagrangian with several types of gauge-breaking terms. Performing a canonical change of variables involving coordinates and momenta satisfying free field equations, we decouple those unphysical degrees of freedom. With this as an illustration, we comment on the general case.

References:

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