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Peer Review

Review of: "On the Gupta-Bleuler and Dirac-Fock Quantization Schemes Revisited"

A. M. Schlichtinger[1]

1. WSB University in Wrocław, Wrocław, Poland

The revised manuscript contains several presentational improvements, but the principal mathematical and physical objections remain unresolved. In particular, the manuscript does not adequately distinguish the auxiliary space from the constrained physical state space, does not analyse the quotient by null states required in the Gupta–Bleuler construction, and does not establish the claimed positivity of the reduced Hamiltonian.

The newly introduced operators ρ_0 and J_0 are not defined in terms of the fundamental fields, their transformation properties and dynamics are unspecified, and the condition $\rho_0 \widehat{\Phi}_0 = 0$ is ambiguous. The proposed gravitational interpretation of $-\Delta\phi_0 = \rho_0$ is not supported by a universal coupling to matter, a relation to the stress–energy tensor, or a relativistic field equation.

A detailed review, including specific recommendations for revising the construction, is provided in the attached PDF. I cannot recommend publication of the manuscript in its present form.

Attachments: available at https://doi.org/10.32388/Z7OBSY

Declarations

Potential competing interests: No potential competing interests to declare.