

In defence of naivete: The conceptual status of Lagrangian quantum field theory

Wallace, David M W (2001) In defence of naivete: The conceptual status of Lagrangian quantum field theory.

Full text available as:

<u>PDF</u> - Requires a viewer, such as <u>Adobe Acrobat Reader</u> or other PDF viewer. <u>Postscript</u> - Requires a viewer, such as <u>GhostView - GSView</u> <u>Tex/LaTeX</u> - Requires a viewer, such as <u>Tex Live - Windvi</u> on the TeX Live CD-ROM.

Abstract

D D

I analyse the conceptual and mathematical foundations of

Lagrangian quantum field theory (that is, the "naive" quantum field theory used in mainstream physics, as opposed to algebraic quantum field theory). The objective is to see whether Lagrangian quantum field theory has a sufficiently firm conceptual and mathematical basis to be a legitimate object of foundational study, or whether it is too ill-defined. The analysis covers renormalisation and infinities, inequivalent representations, and the concept of localised states; the conclusion is that Lagrangian QFT (at least as described here) is a perfectly respectable physical theory, albeit somewhat different in certain respects from most of those studied in foundational work.

Keywords:	Quantum field theory QFT Relativistic quantum mechanics
Subjects:	Specific Sciences: Physics: Quantum Field Theory General Issues: Theory Change
ID Code:	519
eposited By:	Wallace, David
eposited On:	22 December 2001

Send feedback to: philsci-archive@library.pitt.edu