

Analyticity In Quantum Field Theory Ii Causality And

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The First Quantum Field Theory | Space TimeHappy Quantza: Quantum Field Theory for Christmas [Analyticity In Quantum Field Theory](#)
Summary. The leading singularity is studied in scalar triangle graphs. We observe that in some examples of practical interest like the « form factors » the anomalous singularity does not arise when we perform the momentum integrations in the Feynman-Stückelberg amplitudes, indicating that quantum field theory will not necessarily yield the so-called analytic scattering amplitudes.

[Analyticity in quantum field theory | SpringerLink](#)

Quantum field theory with « shadow states » is examined and found to be consistent with macroscopic causality, though not necessarily leading to the so-called normal analytic scattering amplitudes. The consequences from causality in high-energy physics are studied, with particular reference to the well-known claim that a strong connection exists betwe

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A method for improving perturbative calculations of physical quantities in the infra-red limit is developed using general analyticity properties valid for all unitary quantum field theories. The infra-red limit of a physical quantity is shown to equal the limiting value of the Borel transform in a complex scale parameter, where the order of the Borel transform is related to the domain of analyticity.

[Analyticity and scaling in quantum field theory - Durham e...](#)

gravity into a local quantum field theory, and the emergence of the renormalisation group has meant that quantum field theory is now viewed as an effective theory valid below some cut-off scale [5, 6, 7]. A quantum theory of gravity relevant at the Planck scale 10-33cm (and perhaps even at lower scales) therefore has to be

[Durham E-Theses Analyticity and scaling in quantum ield theory](#)

Description. Analytic Properties of Feynman Diagrams in Quantum Field Theory deals with quantum field theory, particularly in the study of the analytic properties of Feynman graphs. This book is an elementary presentation of a self-contained exposition of the majorization method used in the study of these graphs.

[Analytic Properties of Feynman Diagrams in Quantum Field...](#)

On the analyticity properties of five-particle amplitudes in quantum field theory Article (PDF Available) in Il Nuovo Cimento A 13(1) · June 1973 with 10 Reads How we measure 'reads'

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In axiomatic quantum field theory the physical quantities arise as boundary values of some classes of analytic functions of several complex variables holomor- phic in some primitive domains defined by axioms. But in the complex space C^ of dimension N > 2 an arbitrary domain is not in general a domain of holomorphy.

[ANALYTIC FUNCTIONS OF SEVERAL COMPLEX VARIABLES AND...](#)

We argue that certain apparently consistent low-energy effective field theories described by local, Lorentz-invariant Lagrangians, secretly exhibit macroscopic non-locality and cannot be embedded in any UV theory whose S-matrix satisfies canonical analyticity constraints. The obstruction involves the signs of a set of leading irrelevant operators, which must be strictly positive to ensure UV ...

[\[hep-th/0602178\] Causality, Analyticity and an IR...](#)

Coherent States in Field Theory ... the basic formulation of quantum ield theory in terms of coherent ... Because of the overcompleteness and the analyticity of these states, one can expand the density operator by (12) in a diagonal form (the so-called P-representation [7]):

[Coherent States in Field Theory - arXiv](#)

It's commonly used in imaginary-time path integral that "analytic continuation" means replacing t → i t or reparametrizing the theory in terms of imaginary time τ = i t.... quantum-field-theory complex-numbers greens-functions wick-rotation analyticity asked Oct 5 at 21:49

[Newest 'analyticity' Questions - Physics Stack Exchange](#)

This paper addresses the following problem of relativistic quantum field theory: Given a relativistic quantum field, construct a net of local observable algebras over space-time with [natural] properties. A few years ago we started a project which suggests to look at this problem in the framework of relativistic quantum field theory in terms of Fourier hyperfunctions.

[Hyperfunction quantum field theory: Analytic structure...](#)

The principle behind the Regge theory hypothesis (also called analyticity of the second kind or the bootstrap principle) is that all strongly interacting particles lie on Regge trajectories. This was considered the definitive sign that all the hadrons are composite particles, but within S-matrix theory, they are not thought of as being made up of elementary constituents.

[S-matrix theory - Wikipedia](#)

We derive the analytical properties of the elastic forward scattering amplitude of two scalar particles from the axioms of the noncommutative quantum field theory. For the case of only space-space noncommutativity, i.e. θ_{0i} = 0 θ_{ij} = 0, we prove the dispersion relation which is similar to the one in commutative quantum field theory. The proof in this case is based on the existence of the analog of the usual microcausality condition and uses the Lehmann-Symanzik-Zimmermann ...

[Analyticity and forward dispersion relations in...](#)

Chapter 1: Generalities on Quantum Field Theory . 1.1 Classical Mechanics 1.2 Classical Field Theory 1.3 Brownian Motion 1.4 Quantum Mechanics 1.5 Quantum Field Theory. Chapter 2: The Steepest Descent and Stationary Phase Formulas . 2.1 The Steepest Descent Formula 2.2 Stationary Phase Formula 2.3 Non-analyticity of I(h) and Borel Summation

[Lecture Notes I Geometry and Quantum Field Theory...](#)

In the framework of L.S.Z. field theory in the case of a single massive scalar field, the [two-particle irreducible] parts of the n-point functions (in any single channel and for arbitrary n) are defined as the solutions of a system of integral equations suggested by the perturbative framework. These solutions enjoy the analytic and algebraic properties of general n-point functions (up to ...

[Analyticity properties and many-particle structure in...](#)

Lecture 7 8.324 Relativistic Quantum Field Theory II Fall 2010 Then GF (p2) = (s = ip2 + iε), and so, we obtain the Feynman function by approaching the real s-axis from above. We observe two features of (s) : 1. (s) has poles at single-particle mass-squared values: s = mj². 2. There is a branch cut beginning at 4m² with a discontinuity (r + iε) - (r - iε) = 2iε(r).

[8.324 Relativistic Quantum Field Theory II](#)

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[Analyticity and forward dispersion relations in...](#)

string amplitudes satisfy the same analyticity properties as amplitudes in local quantum ield theories indeed, the Veneziano amplitude arose from S-matrix theory the same argument applies to weakly coupled strings. Thus, while string theory is certainly non-

[Causality, analyticity and an IR obstruction to UV completion](#)

Axiomatic quantum field theory is a mathematical discipline which aims to describe quantum field theory in terms of rigorous axioms. It is strongly associated with functional analysis and operator algebras, but has also been studied in recent years from a more geometric and functorial perspective. There are two main challenges in this discipline.