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Nota di contenuto	Why canonical quantization is the only known way to quantize correctly -- Canonical quantization of Yang-Mills theories in axial and planar gauges -- BRST-approach to noncovariant gauges -- Canonical quantization of gauge theories in axial gauges -- Gauge invariance and BRS quantum field theory -- Some aspects of the Fock-Schwinger and poincaré gauges -- Good and bad news concerning axial gauges -- The temporal gauge: Where do we stand? -- Unified-gauge formalism at two loops -- Renormalization and the S- matrix in YM theory in axial gauges -- Tests of gauge invariance in quantum local gauge field theories -- The analytic, principal-value and Landshoff prescriptions for axial gauges -- Trouble even with the Coulomb gauge -- Temporal gauge propagator from the Coulomb gauge -- Regularization and Feynman rules in noncovariant gauges -- A criterion of consistency for

gauge theories in the axial gauge -- A check of the Lee-Ward identities in the planar gauge with the Leibbrandt-Mandelstam prescription -- Nonstandard gauges: A personal point of view -- Gauge independence through extended BRS symmetry: Application to the light-cone gauge -- Extended BRS-symmetry and renormalization in the axial gauge -- Superaxial gauges -- The Piguet-Sibold identities and the light-cone gauge -- BRS techniques applied to the temporal-planar gauge with the vienna prescription: The dependence on the axial vectors -- Comments on the proof of the renormalized action principle -- On-shell compatibility of clashing gauges in quark condensate contributions to standard model selfenergies -- Beyond perturbation theory in the axial gauge -- Cancellation of $1/n \cdot p$ -factors in light-cone gauge Yang-Mills theory -- The gluon propagator in two dimensional space-time -- Hot gluon matter and physical gauges -- Gluon response functions in noncovariant gauges -- Towards a consistent calculation of the QCD plasmon damping constant' -- Nonlocality, Coexistence of UV and IR Asymptotic Freedom and the Landau Damping of Hot QCD Plasma -- The temporal axial gauge at finite temperature.

Sommario/riassunto

In gauge theories, quantization can only be performed in certain fixed gauges, but physical gauges often lead to mathematical complications in the theory. In this volume recent results in noncovariant gauge fixing (including supersymmetry) and renormalizability are thoroughly discussed. It is the first comprehensive presentation of this subject written by leading experts in the field.
