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Introduction ; 2. Solution of the Dirac equation for massless particles in a field singular on the light cone ; 3. Vacuum current of massless fermions 4. Vacuum current in the pure bremsstrahlung field 5. Vacuum current in perturbation theory ; 6. Structure of the self-consistent field ; 7. Vacuum current in the self-consistent field ; 8. Currents and fields inside the cone ; 9. Analogy with the one-dimensional case ; References Outlook

Sommario/riassunto

V N Gribov, one of the founders of modern particle physics, shaped our understanding of QCD as the microscopic dynamics of hadrons. This volume collects his papers on quark confinement, showing the road he followed to arrive at the theory and formulating the theory itself. It begins with papers providing a beautiful physical explanation of asymptotic freedom based on the phenomenon of antiscreening and demonstrating the inconsistency of the standard perturbative treatment of the gluon fields (Gribov copies, Gribov horizon). It continues with papers presenting the Gribov theory according to wh