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Yang-Mills fields, Radon-Penrose transform and Cauchy-Riemann equations. (Russian)

Zbl 0706.53047

Itogi Nauki Tekh., Ser. Sovrem. Probl. Mat., Fundam. Napravleniya 54, 113-196 (1989).

The survey is devoted to the questions of complex analysis and mathematical physics in connection with Yang-Mills fields and Cauchy-Riemann equations. Principal subjects: Radon-Penrose gauge-fields transform (§§ 4,6), its ties with Faddeev type dispersion data (§ 5), Yang-Mills equations as compatibility conditions of linear equations with complex spectral parameter (§ 1,2), Yang-Mills equations in terms of the $\bar{\partial}$ -equation on distance data (§ 7,8); interpretation of the solutions of Yang-Mills-Higgs-Dirac equations by holomorphic vector bundles over the manifold of complex light lines (§§ 7,8,9).

Reviewer: [M.Rahula](#)

MSC:

[53C80](#) Applications of global differential geometry to the sciences
[81T13](#) Yang-Mills and other gauge theories in quantum field theory
[32V05](#) CR structures, CR operators, and generalizations

Cited in **1** Review
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Keywords:

[twistor](#); [Yang-Mills fields](#); [Cauchy-Riemann equations](#); [holomorphic vector bundles](#)