

The global conformal gauge for two-dimensional metric is playing very important role in mathematical physics, in particular, it is crucial for string theory providing the basis for quantization. Its existence for two-dimensional Lorentzian metric is known locally for a long time. We prove that if a Lorentzian metric is given on a plain then the conformal gauge exists globally on the whole \mathbb{R}^2 . Moreover, we prove the existence of the conformal gauge globally on the whole worldsheets represented by infinite strips with straight boundaries for open and closed bosonic strings. The global existence of the conformal gauge on the whole plane is also proved for the positive definite Riemannian metric. The transition from local to global considerations is based on the global existence theorem for the solution of the Cauchy problem for two-dimensional hyperbolic differential equations with varying coefficients.