

**On the Cauchy problem for hyperbolic operators
with triple characteristics whose coefficients de-
pend only on the time variable**

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We have considered the Cauchy problem for hyperbolic operators with double characteristics whose principal symbols have time-dependent coefficients and given sufficient conditions and necessary conditions for C^∞ well-posedness, before. Here we deal with the Cauchy problem for hyperbolic operators with triple characteristics whose coefficients are real analytic functions of the time variable. We factorize the operators as products of hyperbolic operators whose symbols are polynomials of τ of degree ≤ 3 , where τ is the dual variable of the time variable. For hyperbolic operators of third order we defined the sub-sub-principal symbols and we proved the Cauchy is C^∞ well-posed imposing conditions on the subprincipal symbol and the sub-sub-principal symbol. We shall generalize the conditions for operators of third order and give the sufficient conditions that the Cauchy problem for hyperbolic operators with triple characteristics is C^∞ well-posed. For special operators of third order we shall prove our conditions are necessary for C^∞ well-posedness.