GLOBAL HYPOELLIPTICITY FOR A CLASS OF PERIODIC CAUCHY OPERATORS

FERNANDO DE ÁVILA SILVA

Abstract

We present recent investigations on the study of the global hypoellipticity problem for Cauchy operators on \mathbb{T}^{n+1} belonging to the class $L = \prod_{j=1}^{m} (D_t + c_j(t)P_j(D_x))$, where $P_j(D_x)$ are pseudo-differential operators on \mathbb{T}^n and $c_j(t)$ are smooth complex valued functions on \mathbb{T} . The main goal of this investigation consists in establishing connections between the global hypoellipticity of the operators L and its normal form $L_0 = \prod_{j=1}^{m} (D_t + c_{0,j}P_j(D_x))$. In order to do so, the problem is approached by combining Hörmander's and Siegel's conditions on the symbols of the operators $L_j = D_t + c_j(t)P_j(D_x)$.

UNIVERSIDADE FEDERAL DO PARANÁ Email address: fernando.avila@ufpr.br