Strictly Hyperbolic Equations with Low-Regular Coefficients with Respect to Time

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We discuss the strictly hyperbolic Cauchy problem

$$\begin{cases} D_t^m u = \sum_{j=0}^{m-1} \sum_{|\gamma|+j\leq m} a_{m-j,\gamma}(t,\, x) D_x^\gamma D_t^j u + f(t,x), \\ D_t^{k-1} u(0,x) = g_k(x), \quad (t,x) \in [0,T] \times \mathbb{R}^n,\, k = 1,\, \ldots,\, m, \end{cases}$$

where the coefficients of the principal part $a_{m-j,\gamma}(t,\, x)$, $(|\gamma| + j = m)$ satisfy a given modulus of continuity with respect to time. We derive a global (in time) existence theorem and explain how the modulus of continuity, i.e. the regularity of the coefficients in time, is linked to the regularity of the coefficients in space. Some well-known examples complete the talk.