ON CLASSICAL SOLVABILITY
OF THE FIRST INITIAL-BOUNDARY VALUE PROBLEM
FOR EQUATIONS GENERATED BY CURVATURES

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Dedicated to Jürgen Moser

1. Main theorem and estimations in $\mathbb{C}^2$

The aim of this paper is to prove the existence theorem announced in [5]. The proof is based on á priori estimates which were done in [6]–[8] for solutions to equations including the equations from [5]. We have to add to these estimates the estimates of Hölder constants for u_t and $u_{x_i x_j}$. Section 2 is devoted to this purpose.

We study the problems

$$(1.1) \quad M_m[u] = -\frac{u_t}{\sqrt{1+u_x^2}} + f_m(k[u]) = g \quad \text{in } Q_T = \Omega \times (0,T),$$

$$(1.2) \qquad\qquad u = \varphi \quad \text{on } \partial' Q_T, \ m \in [2,n],$$

where Ω is a bounded domain in $\mathbb{R}^n$ with a smooth boundary $\partial\Omega$, $\partial' Q_T = \partial'' Q_T \cup \Omega(0)$, $\partial'' Q_T = \partial\Omega \times [0,T]$, $\Omega(0) = \{z = (x,t) \mid x \in \Omega, t = 0\}$. Functions $g : \overline{Q}_T \to \mathbb{R}^1$ and $\varphi : \overline{\Omega} \to \mathbb{R}^1$ are known, and function