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Initial value problems in Clifford-type analysis

Yanett M. Bolívar, Carmen J. Vanegas

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We consider an initial value problem of type $$ \frac{\partial u}{\partial t}= {\cal F}(t,x,u,\partial_j u), \quad u(0,x)=\phi(x), $$ where t is the time, $x \in \mathbb{R}^n $ and u_0 is a Clifford type algebra-valued function satisfying ${\bf D}u=\displaystyle\sum_{j=0}^{n}\lambda_j(x)e_j\partial_ju = 0 $, $\lambda_j(x)\in \mathbb{R} $ for all j. We will solve this problem using the technique of associated spaces. In order to do that, we give sufficient conditions on the coefficients of the operators ${\cal F}$ and ${\bf D}$, where ${\cal F}(u)= \displaystyle\sum_{i=0}^{n}A^{(i)}(x) \displaystyle\partial_iu$ for $A^{(i)}(x) \in \mathbb{R}$ or $A^{(i)}(x)$ belonging to a Clifford-type algebra, such that these operators are an associated pair.

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