1025-32-16 **S. Berhanu*** (berhanu@temple.edu), Department of Mathematics, Temple University, Philadelphia, PA 19122, and **S. Berhanu**. *On analyticity of solutions of first-order nonlinear PDE*

Let $(x,t) \in \mathbb{R}^m \times \mathbb{R}$ and $u \in C^2(\mathbb{R}^m \times \mathbb{R})$. We study the microlocal analyticity of solutions u of the nonlinear equation

$$u_t = f(x,t,u,u_x)$$

where $f(x,t,\zeta_0,\zeta)$ is complex-valued, real analytic in all its arguments and holomorphic in (ζ_0,ζ). We show that if the function u is a C^2 solution, $\sigma \in \operatorname{Char} L^u$ and $\frac{1}{i}\sigma([L^u,\overline{L^u}]) < 0$ or if u is a C^3 solution, $\sigma \in \operatorname{Char} L^u$, $\sigma([L^u,\overline{L^u}]) = 0$, and $\sigma([L^u,[L^u,\overline{L^u}]]) \neq 0$, then $\sigma \notin WF_a u$. Here $WF_a u$ denotes the analytic wave-front set of u and $\operatorname{Char} L^u$ is the characteristic set of the linearized operator

$$L^u = \frac{\partial}{\partial t} - \sum_{j=1}^{m} \frac{\partial f}{\partial \zeta_j}(x,t,u,u_x)\frac{\partial}{\partial x_j}.$$

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