1172-42-40 **María Jesús Carro**, **Virginia Naibo*** (vnaibo@ksu.edu) and **Carmen Ortiz-Caraballo**. *The Neumann problem in graph Lipschitz domains in the plane.*

We present new aspects of the solvability of the classical Neumann boundary value problem in a graph Lipschitz domain in the plane. When the domain is the upper half-plane and the boundary data is assumed to belong to weighted Lebesgue or weighted Lorentz spaces, we show that the solvability of the Neumann problem in these settings may be characterized in terms of Muckenhoupt weights and related weights, respectively. For a general graph Lipschitz domain Ω, as proved in an unpublished work by E. Fabes and C. Kenig, there exists $\varepsilon_\Omega > 0$ such that the Neumann problem is solvable with data in $L^p(\partial\Omega)$ for $1 < p < 2 + \varepsilon_\Omega$; we show that the Neumann problem is solvable at the endpoint $2 + \varepsilon_\Omega$ with data in the Lorentz space $L^{2+\varepsilon_\Omega,1}(\partial\Omega)$. We present examples of the results in Schwarz-Christoffel Lipschitz domains and related domains. (Received August 10, 2021)