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Alejandro Vélez-Santiago* (avelez@math.ucr.edu). *Global regularity for solutions of nonlocal Robin problems in a class of “bad” domains.*

We consider the solvability of quasi-linear elliptic equations with nonlocal Robin boundary conditions, defined (in the generalized sense) on a bounded $W^{1,p}$ -extension domain whose boundary is an upper d -set, for an appropriate $d \geq 0$. Then, we extend the fine regularity theory for weak solutions of the elliptic equations with the above boundary condition, known for bounded Lipschitz domains, to bounded $W^{1,p}$ -extension domains whose boundaries are upper d -sets, by showing that such weak solutions are globally Hölder continuous. Consequently, we generalize substantially the class of bounded domains where weak solutions of boundary value problems of Robin type may be uniformly continuous (up to the boundary). (Received September 15, 2015)