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Alejandro Vélez-Santiago* (alejandro.velez2@upr.edu). *On the well-posedness of first order variable exponent Cauchy problems with Wentzell-Robin boundary conditions on arbitrary domains.*

We define the notion of relative capacity of variable exponent type, referred in this article as the relative $p(\cdot)$ -capacity, and use this approach to obtain a necessary and sufficient condition for the well-posedness of the corresponding parabolic boundary value problems involving the $p(\cdot)$ -Laplace operator and Wentzell-Robin boundary conditions on arbitrary domains. Consequently, we were able to obtain the realization of the $p(\cdot)$ -Laplacian with Wentzell-Robin boundary conditions on a large class of domains that may include many non-smooth and fractal domains, and under very weak assumptions on the exponent $p(\cdot)$ and measures on the boundary. (Received July 09, 2013)