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**Debendra P. Banjade\*** (dpbanjade@crimson.ua.edu), The University of Alabama, Department of Mathematics, P. O. Box 870350, Tuscaloosa, AL 35487. *Generalized Corona Theorem and Wolff's Ideal Theorem on the Multiplier Algebra of Weighted Dirichlet Spaces, and on  $Q_p$  Spaces.*

In 1962, L. Carleson proved his celebrated Corona Theorem characterizing when a finitely generated ideal of  $H^\infty(\mathbb{D})$  is all of  $H^\infty(\mathbb{D})$ . Later, in 1980, T. Wolff extended Carleson's result and partially generalized the Corona Theorem in  $H^\infty(\mathbb{D})$ . More recently, S. Treil provided the best known sufficient condition for the generalized Corona Theorem in  $H^\infty(\mathbb{D})$ . In this talk, we will discuss the extension of Wolff's Theorem and the generalized Corona Theorem to the multiplier algebra on weighted Dirichlet spaces. Of course, operator theory approach and complete Nevanlinna-Pick kernels will play a main role. Also, we will mention our conjecture towards the multivariable case. Additionally, we provide analogous results on Möbius invariant Dirichlet spaces, so called  $Q_p$  spaces for  $0 < p < 1$ . For  $Q_p$  spaces,  $\bar{\partial}$  - equations and  $p$  - Carleson measures will be crucial tools for us.

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