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Xiao-Xiong Gan* (xiao-xiong.gan@morgan.edu), Department of Mathematics, Morgan State University, Baltimore, MD 21251. *Formal Power Series and The Boundary Convergence of Power Series.*

The behavior of power series on boundary of convergence domain has been an interesting topic since power series was introduced. For example,

$$f(x) = \sum_{n=1}^{\infty} \frac{(-1)^n}{n} x^n$$

converges on $(-1, 1]$ but diverges at $x = -1$.

The composition of formal power series has been an important part of the *formal power series* theory. We introduce some new results about the boundary convergence of a (*regular*) power series by means of some new development in formal power series. (Received September 21, 2012)