

1035-W1-565      **Peter A. Loeb\*** ([loeb@math.uiuc.edu](mailto:loeb@math.uiuc.edu)), Department of Mathematics, University of Illinois, 1409 West Green Street, Urbana, IL 61801. *A Local Maximal Function Simplifying Measure Differentiation.*

Juergen Bliedtner and the author have developed and employed in various settings a general approach to limit theorems using a local version of the classical maximal function. The advantage gained in the proofs of such theorems is that one need only consider sets where the input vanishes. With this technique and the Aldaz-Rado optimal covering theorem for the real line, the author has considerably simplified and shortened the treatment in his course of the material on differentiation and absolute continuity. We will discuss these results, which have now appeared in a note with Bliedtner in the June-July of 2007 issue of the MAA Monthly, and focus on their application to the teaching of graduate real analysis. (Received September 10, 2007)