1063-42-53 **Loukas Grafakos**, University of Missouri, Columbia, Missouri, **Liguang Liu**, Renmin University of China, Beijing, Peoples Rep of China, **Carlos Pérez**, Universidad de Sevilla, Seville, Spain, and **Rodolfo H. Torres*** (`torres@math.ku.edu`), Department of Mathematics, University of Kansas, 1460 Jayhawk Blvd, Lawrence, KS 66045-7594. *The multilinear strong maximal function.*

A multivariable version of the strong maximal function is introduced and a sharp distributional estimate for this operator in the spirit of the Jessen, Marcinkiewicz, and Zygmund theorem is obtained. Conditions that characterize the boundedness of this multivariable operator on products of weighted Lebesgue spaces equipped with multiple weights are obtained. Results for other multi(sub)linear maximal functions associated with bases of open sets are studied too. Bilinear interpolation results between distributional estimates, such as those satisfied by the multivariable strong maximal function, are also proved. (Received July 28, 2010)