

# On the Regularity of the Multisublinear Maximal Functions

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*Abstract.* This paper is concerned with the study of the regularity for the multisublinear maximal operator. It is proved that the multisublinear maximal operator is bounded on first-order Sobolev spaces. Moreover, two key point-wise inequalities for the partial derivatives of the multisublinear maximal functions are established. As an application, the quasi-continuity on the multisublinear maximal function is also obtained.