

Departamento de Matemáticas

On Equivalent Conditions for Local Error Bounds

Abstract: In this talk we present two classes of equivalent conditions for local error bounds in finite dimensional spaces. We formulate conditions of the first class by using subderivatives, subdifferentials and strong slopes for nearby points outside the referenced set, and show that these conditions actually characterize a uniform version of the local error bound property. We demonstrate this uniformity for the max function of a finite collection of smooth functions, and as a consequence we show that quasinormality constraint qualifications guarantee the existence of local error bounds. We further present the second class of equivalent conditions for local error bounds by using the various limits defined on the boundary of the referenced set. In presenting these conditions, we exploit the variational geometry of the referenced set in a systematic way and unify some existing results in the literature. We will also discuss some further results on the error bounds.

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