ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

8. Analysis

1991 MS Classification: 46B20, 90C48

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Porosity and variational principles

The notion of σ-*porosity* in metric spaces is a strict refinement of both the notion of the first Baire category and the notion of Lebesgues measure zero in finite dimensions. We prove that in several classes of optimization problems, including the setting of the smooth variational principles, the complement of the set of well-posed problems is σ-porous. Recall that a minimization problem is *well-posed* (or equivalently has a *strong minimum*) if it has unique minimum towards which every minimizing sequence converges.