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On harmonic maps from stochastically complete manifolds. (English) Zbl 1180.58011

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A Riemannian manifold M is stochastically complete iff for any C^2-function $u : M \to \mathbb{R}$ bounded from above there exists a sequence $\{x_k\}$ in M such that $u(x_k)$ converges to the supremum while the limit of $\Delta u(x_k)$ is nonpositive. This is a generalized maximum principle, which is used in the paper to derive a nonexistence result about harmonic maps from such M to a cone type target. This generalizes earlier results of Omori and Baikoussis-Koufogiorgos and in some cases coincides with a result from [*A. Atsuji*, Proc. Japan Acad., Ser. A 75, No. 7, 105–108 (1999; Zbl 0960.58019)].

Reviewer: Andreas Gastel (Erlangen)

MSC:

58E20	Harmonic maps, etc.
53C43	Differential geometric aspects of harmonic maps
53C42	Differential geometry of immersions (minimal, prescribed curvature, tight, etc.)
60H30	Applications of stochastic analysis (to PDEs, etc.)

Keywords:

harmonic maps; stochastically complete manifolds; minimal submanifolds; generalized maximum principle; Laplace-Beltrami operator; heat kernel

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