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**Georgios Daskalopoulos** and **Chikako Mese\*** ([cmese@math.jhu.edu](mailto:cmese@math.jhu.edu)), 3400 N. Charles Street,  
Baltimore, MD 21218. *Harmonic maps from a simplicial complex and geometric rigidity.*

We study harmonic maps from an admissible flat simplicial complex to a non-positively curved Riemannian manifold. These maps are shown to be  $C^\infty$  at the interfaces of the top-dimensional simplices in addition to satisfying a balancing condition. If we assume that the domain is a 2-complex satisfying certain geometric and combinatoric conditions, then the regularity, the balancing condition, and a Bochner formula lead to rigidity and vanishing theorems for harmonic maps. (Received August 22, 2006)