Christine Breiner* (cbreiner@fordham.edu), Ailana Fraser, Lan-Hsuan Huang, Chikako Mese, Pam Sargent and Yingying Zhang. *Existence of harmonic maps into CAT(1) spaces.

Let \( \varphi \in C^0 \cap W^{1,2}(\Sigma, X) \) where \( \Sigma \) is a compact Riemann surface, \( X \) is a compact locally CAT(1) space, and \( W^{1,2}(\Sigma, X) \) is defined as in Korevaar-Schoen. We use the technique of harmonic replacement to prove that either there exists a harmonic map \( u : \Sigma \to X \) homotopic to \( \varphi \) or there exists a nontrivial conformal harmonic map \( v : S^2 \to X \). To complete the argument, we prove compactness for energy minimizers and a removable singularity theorem for conformal harmonic maps. (Received January 23, 2019)