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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 Σ 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 $u : \Sigma \rightarrow X$ homotopic to φ or there exists a nontrivial conformal harmonic map $v : \mathbb{S}^2 \rightarrow X$. To complete the argument, we prove compactness for energy minimizers and a removable singularity theorem for conformal harmonic maps. (Received January 23, 2019)