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Henry H. Kim and **Kyu-Hwan Lee*** (khlee@math.uconn.edu), Department of Mathematics, University of Connecticut, Storrs, CT 06268-3009. *Rank 2 symmetric hyperbolic Kac-Moody algebras and Hilbert modular forms.*

We study rank two symmetric hyperbolic Kac-Moody algebras $\mathcal{H}(a)$, $a \geq 3$ and their automorphic correction in terms of Hilbert modular forms. We associate a family of $\mathcal{H}(a)$'s to the quadratic field $\mathbb{Q}(\sqrt{p})$ for each odd prime p and show that there exists a chain of embeddings in each family. When $p = 5, 13, 17$, we show that the first $\mathcal{H}(a)$ in each family, i.e. $\mathcal{H}(3), \mathcal{H}(11), \mathcal{H}(66)$, is contained in a generalized Kac-Moody superalgebra whose denominator function is a Hilbert modular form given by a Borcherds product. Hence, our results provide automorphic correction for those $\mathcal{H}(a)$'s. (Received February 10, 2012)