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C. Ryan Vinroot* (vinroot@math.wm.edu), Mathematics Department, College of William and Mary, P. O. Box 8795, Williamsburg, VA 23187. *Shintani lifting, finite subfield symmetric spaces, and real-valued characters*. Preliminary report.

Let G be a connected reductive algebraic group with connected center defined over a finite field \mathbb{F}_q with Frobenius map F , and so defined over \mathbb{F}_{q^2} with Frobenius map F^2 . Let χ be an irreducible real-valued uniform character of G^{F^2} . We show that if χ is the Shintani lift of a character of G^F , then χ must be the character of a representation defined over the real numbers. The proof of this statement follows from results on subfield symmetric spaces over finite fields due to Kawanaka and others. We also obtain results concerning the behavior of real-valued irreducible Deligne-Lusztig characters under Shintani lifting of arbitrary degree. (Received February 04, 2009)