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Konrad Waldorf* (waldorf@math.berkeley.edu), University of California, Berkeley,
Department of Mathematics, 970 Evans Hall, Berkeley, CA 94720-3840. *String Connections and
Supersymmetric Sigma Models.*

I describe a smooth and finite-dimensional approach to string structures and string connections on spin bundles. It is based on trivializations of a certain Chern-Simons 2-gerbe, and turns out to be equivalent to homotopy-theoretical notions of Stolz and Teichner. I will report on several new results about string connections. Finally I will try to illuminate the relation between string connections and the supersymmetric sigma model. (Received September 14, 2009)