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Hisham Sati* (hisham.sati@yale.edu), Yale University, Mathematics Department, PO Box 208283, New Haven, CT 06520-8283. *Fivebrane structures in string theory and M-theory.*

We consider geometric and topological aspects of the ‘dual formulations’ of string theory and M-theory. The dual version of the Green-Schwarz anomaly cancelation condition can be read as a higher analog of String structure, which we call Fivebrane structure. This involves lifts to higher connected covers of the structure groups. We characterize the topological obstructions to the existence of Fivebrane structures and describe some aspects of their geometry. We also describe twists of such structures which can be thought of as generalizations of the twist of Spin^c -structures. This is joint work with Urs Schreiber and Jim Stasheff. (Received January 08, 2009)