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**C. Ryan Vinroot\*** ([vinroot@math.wm.edu](mailto:vinroot@math.wm.edu)), Department of Mathematics, College of William and Mary, P. O. Box 8795, Williamsburg, VA 23187-8795. *Totally orthogonal finite simple groups*. Preliminary report.

A group  $G$  is said to be totally orthogonal if every irreducible complex representation of  $G$  may be realized over the real numbers. We prove that if  $q$  is a power of 2, then the symplectic and (full) orthogonal groups over the field with  $q$  elements are totally orthogonal. From this and previous results, we obtain the statement that a finite simple group  $G$  is totally orthogonal if and only if every element of  $G$  is a product of two involutions in  $G$ . (Received January 04, 2018)