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The Monotone Secant Conjecture posits a rich class of polynomial systems, all of whose solutions are real. These systems come from the Schubert calculus on flag manifolds, and the Monotone Secant Conjecture is a compelling generalization of the Shapiro Conjecture for Grassmannians (Theorem of Mukhin, Tarasov, and Varchenko). We present the Monotone Secant Conjecture, explain the massive computation evidence in its favor, and discuss its relation to the Shapiro Conjecture. (Received August 15, 2011)