1048-14-298   **Zach Teitler*** (`zteitler@tamu.edu`), Department of Mathematics, Mailstop 3368, Texas A&M University, College Station, TX 77843. *Experimentation at the Frontiers of Reality in Schubert Calculus.* Preliminary report.

When a Schubert problem is given by real reference flags, all, some, or none of the solutions may be real. A conjecture of B. and M. Shapiro asserts that all the solutions will be real if the reference flags osculate a real rational normal curve. This is known for Schubert problems on Grassmanians by work of Mukhin-Tarasov-Varchenko. A variant of the conjecture asserts the reality of the solutions when the reference flags are secant to disjoint intervals on the curve. This is known on the Grassmanians $G(n-2, n)$ by work of Eremenko, Gabrielov, M. Shapiro, and Vainshtein. Massive computational experimentation provides overwhelming support for the secant conjecture more generally and hints at intriguing new phenomena, including reality of solutions even when the disjointness hypothesis is relaxed. I will describe the conjecture and the ongoing computation. (Received February 10, 2009)