1035-14-1113   **Susan Cooper** (`sucooper@calpoly.edu`), Department of Mathematics, Faculty East-Building 25, Room 320, California Polytechnic State University, San Luis Obispo, CA 93407, **Brian Harbourne*** (`bharbour@math.unl.edu`), Department of Mathematics, University of Nebraska-Lincoln, Lincoln, NE 68588-0130, and **Zach Teitler** (`zteitler@gmail.com`), Department of Mathematics, Mailstop 3368, Texas A&M University, College Station, TX 77843-3368. *Hilbert functions of fat points in P2 whose support is a pseudo-linear configuration.*

Dimensions of tangent spaces to secant varieties motivate one to study Hilbert functions of double point schemes. This talk reports on joint work with Susan Cooper and Zach Teitler generalizing a criterion of Geramita-Migliore-Sabourin for computing the Hilbert function of a double point scheme whose support is a pseudo-linear configuration (i.e., a set of points which is a certain union of collinear subsets). Our generalization applies also to arbitrary symbolic powers of the ideal of the support scheme, and to the mixed multiplicity case (i.e., when different collinear subsets have different multiplicities). (Received September 18, 2007)