1026-05-149   **James B Haglund*** (`jhaglund@math.upenn.edu`) and **Mahir Can** (`mcan@uwo.ca`). *Some combnatorial conjectures linked to the nested Hilbert scheme and the ring of diagonal coinvariants.* Preliminary report.

In the early 1990's Garsia and Haiman initiated the study of the "diagonal action" of the symmetric group on the ring of diagonal coinvariants. In 2001 Haiman proved a formula for the character under this action, which implies the multiplicity of the sign character is the nth Catalan number. This work involves the Hilbert scheme of n points in the plane, and recently Can has extended many of Haiman's results to the nested Hilbert scheme. We discuss some combinatorial conjectures of Can and the speaker involving the corresponding analog of the Catalan numbers in this setting. (Received February 24, 2007)