1074-05-271 **Joshua N. Cooper** (cooper@math.sc.edu), Columbia, SC, **Robert B. Ellis*** (rellis@math.iit.edu), Chicago, IL 60616, and **Daniel Tietzer** (dtietzer@iit.edu) and **James Williamson** (jwilli18@iit.edu). *Identification of strategies for liar-type games via discrepancy from their linear approximations.* Preliminary report.

A liar game is a 2-person perfect information played by Paul and Carole in which Paul uses Yes-No questions to find a distinguished element known by Carole, and Carole is allowed to lie a prescribed number of times. Liar games were introduced by Renyi and Ulam, and in an equivalent form, by Berlekamp. In the pathological variant, Paul plays to preserve possibilities for the distinguished element, while Carole plays to disqualify all possibilities. The original and pathological variants are equivalent to adaptive error-correcting and adaptive covering codes, respectively. Good strategies for the pathological variant, when the number of lies is a constant fraction of the total number of questions, have been found by comparison of the game to its linear approximation, called the "liar machine." We describe recent progress in this area, including extension to q-ary from binary Yes-No responses, and to a more general framework corresponding to group testing or pooling. Joint work with Joshua Cooper, Daniel Tietzer, and James Williamson. (Received August 23, 2011)