1086-68-1714 **Christian Ikenmeyer*** (ciken@math.upb.de). *Geometric Complexity Theory and Tensor Rank.* Preliminary report.

Mulmuley and Sohoni (GCT1 in SICOMP 2001, GCT2 in SICOMP 2008) proposed to view the permanent versus determinant problem as a specific orbit closure problem and to attack it by methods from geometric invariant and representation theory. At STOC 2011, Bürgisser and Ikenmeyer showed that these ideas can be adopted towards the goal of proving lower bounds on the border rank of specific tensors, in particular for matrix multiplication. Since then, significant progress in this direction has been made, which we want to present. (Received September 24, 2012)