1090-68-385 **Nicholas Mattei**, **Judy Goldsmith*** (goldsmit@cs.uky.edu), **Andrew Klapper** and **Martin Mundhenk**. *On the Complexity of Bribery and Manipulation in Tournaments with Uncertain Information.*

We study the computational complexity of bribery and manipulation schemes for sports tournaments with uncertain information. We introduce a general probabilistic model for multi-round tournaments. We also consider several special types of tournament: challenge (or caterpillar), cup, and round robin. Our results carry over to the equivalent voting rules: sequential pair-wise elections, cup, and Copeland, when the set of candidates is exactly the set of voters. This restriction, that candidates equal voters, creates new difficulties for most existing manipulation algorithms. The complexity of bribery and manipulation are well studied, almost always assuming deterministic information about votes and results. We assume that for candidates i and j the probability that i beats j and the costs of lowering each probability by fixed increments are known to the manipulators. We provide complexity analyses for several problems related to manipulation and bribery for the various types of tournaments. Complexities range from probabilistic log space to $\mathrm{np}^{\mathrm{pp}}$. This shows that the introduction of uncertainty into the reasoning process drastically increases the complexity of bribery problems in some instances. (Received March 05, 2013)