

1104-62-83

Jing Xi* (jxi2@ncsu.edu), 3151 SAS Hall, Raleigh, NC 27695, and **Seth Sullivant** (smsulli2@ncsu.edu), 3151 SAS Hall, Raleigh, NC 27695. *Sequential Importance Sampling for Two-dimensional Ising Models.*

In recent years, sequential importance sampling (SIS) has been well developed for sampling contingency tables with linear constraints. In this talk, we apply SIS procedure to 2-dimensional Ising models, which give observations of 0-1 tables and include both linear and quadratic constraints. We show how to compute bounds for specific cells by solving linear programming (LP) problems over cut polytopes to reduce rejections. The computational results, which includes both simulations and real data analysis, suggest that our method performs very well for sparse tables and when the 1's are spread out: the computational times are short, the acceptance rates are high, and in most cases our conclusions are theoretically reasonable. (Received August 22, 2014)