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**Jason Cantarella\*** ([jason.cantarella@gmail.com](mailto:jason.cantarella@gmail.com)), Department of Mathematics, University of Georgia, Boyd GSRC, Athens, GA 30602, and **Bertrand Duplantier**, **Clayton Shonkwiler** and **Erica Uehara**. *Sampling equilateral space polygons*.

A crucial background task in understanding random knotting is generating correct random ensembles of space polygons. In this talk, we'll present a surprisingly simple algorithm for equilateral polygon sampling based on the toric symplectic structure of equilateral polygon space. Some of the estimates involved in computing the runtime of the algorithm are of independent interest in the theory of polygon spaces. (Received August 22, 2016)