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Yanwen Luo* (ywluo@ucdavis.edu), 200 atrium Way Apt 224, Davis, CA 95616. *The space of geodesic triangulations on surfaces.*

How to construct a straight-line embedding of any given planar graph is a fundamental problem in computational geometry. In 1963, Tutte provided a simple constructive method to produce a straight-line embedding of a 3-vertex-connected planar graph by solving a sparse linear system. In this talk, we will show that this idea can be applied to give a new proof of the Bloch-Connelly-Henderson theorem, which states that the space of geodesic triangulations of a convex polygon with a fixed combinatorial type is a contractible space. We will also prove that the space of geodesic triangulations on a flat torus with a fixed combinatorial type has the homotopy type of a torus. Finally, we will discuss the conjecture for the space of geodesic triangulations on hyperbolic surfaces. (Received March 01, 2020)