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Jared Anderson and **Tom Braden*** (`braden@math.umass.edu`), Department of Mathematics and Statistics, LGRT, University of Massachusetts, Amherst, MA 01003, and **Mikhail Kogan** and **Robert MacPherson**. *Semi-infinite moment graphs*. Preliminary report.

It has been conjectured that perverse sheaves on the affine Grassmannian $G(\mathbf{C}((t)))/G(\mathbf{C}[[t]])$ which are constructible with respect to the orbits of $N(\mathbf{C}((t)))$ should be important for representation theory. Unfortunately these orbits have infinite dimension and infinite codimension, and a definition of these perverse sheaves does not exist yet. We show that an algorithm two of us previously gave to compute simple equivariant perverse sheaves on a finite-dimensional Schubert variety in terms of sheaves on a “moment graph” extracted from its zero and one-dimensional orbits under an action of a torus can be applied to the case of $N(\mathbf{C}((t)))$ orbits, with meaningful results. In particular, the stalk multiplicities are given by “periodic” affine Kazhdan-Lusztig polynomials. (Received February 20, 2006)