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**Mikhail Mazin\*** ([mmazin@math.ksu.edu](mailto:mmazin@math.ksu.edu)), Mathematics Department, 138 Cardwell Hall,  
Manhattan, KS 66506-2602. *Hyperplane Arrangements and Parking Functions.*

Back in the nineties Pak and Stanley introduced a labeling of the regions of a  $k$ -Shi arrangement by  $k$ -parking functions and proved its bijectivity. Duval, Klivans, and Martin considered a modification of this construction associated with a graph  $G$ . They introduced the  $G$ -Shi arrangement and a labeling of its regions by  $G$ -parking functions. They conjectured that their labeling is surjective, i.e. every  $G$ -parking function appears as a label of a region of the  $G$ -Shi arrangement. Later Hopkins and Perkinson proved this conjecture. In particular, this provided a new proof of the bijectivity of Pak-Stanley labeling in the  $k = 1$  case. We generalize Hopkins-Perkinson's construction to the case of arrangements associated with oriented multigraphs. In particular, our construction provides a simple straightforward proof of the bijectivity of the original Pak-Stanley labeling for arbitrary  $k$ .

In this talk, I will introduce necessary background and definitions and sketch the proof of the surjectivity of the labeling. (Received August 14, 2014)