1025-20-138 **Anne Thomas*** (`athomas@math.uchicago.edu`), Department of Mathematics, University of Chicago, 5734 S University Ave, Chicago, IL 60637. *Lattices acting on symmetric polygonal complexes.*

A (k, L)-complex is a polygonal complex with each 2-cell a regular k-gon, and the link at each vertex a fixed graph L. Świątkowski showed that for $k \geq 4$ and L belonging to a class of highly symmetric graphs, there is a unique (k, L)-complex X, and the group $\mathrm{Aut}(X)$ is nondiscrete. We begin the study of lattices in $\mathrm{Aut}(X)$. Using graph theory and group extensions, we construct uniform and nonuniform lattices. For specific examples of L, such as the Petersen graph, we obtain further results, including the existence of an infinite ascending tower of lattices. We note that the (k, L)-complex X is not in general a building. (Received January 20, 2007)