1114-14-346   **Derek Hoeft***, dhoeft@csusm.edu, and **Shahed Sharif**. *Possible Matrix Representations of Graph Cycle Spaces.* Preliminary report.

Let Γ be a graph and τ be an automorphism on Γ. The integral representation of τ on the space of cycles of Γ gives rise to a square integer matrix A. We would like to determine what matrices A can arise this way. An obvious necessary condition is that A has finite order. Is this condition sufficient? We show that the answer is no by showing that A cannot have characteristic polynomial $x^4 - x^2 + 1$. (Received September 01, 2015)