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Derek Hoefft*, dhoefft@csusm.edu, and **Shahed Sharif**. *Possible matrix representations of connected graph flow spaces*. Preliminary report.

Let Γ be a connected graph and τ be an automorphism on Γ . The integral representation of τ on the flow space 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 February 15, 2016)