1154-15-1083 **Chassidy Bozeman***, cbozeman@mtholyoke.edu. *Tree covers and the positive semidefinite maximum nullity of a graph.*

For a simple graph $G = (V, E)$, let $\mathcal{S}_+(G)$ denote the set of real positive semidefinite matrices $A = (a_{ij})$ such that $a_{ij} \neq 0$ if $\{i, j\} \in E$ and $a_{ij} = 0$ if $\{i, j\} \notin E$. The maximum positive semidefinite nullity of G, denoted $\mathrm{M}_+(G)$, is $\max\{\mathrm{null}(A) | A \in \mathcal{S}_+(G)\}$. A tree cover of G is a collection of vertex-disjoint simple trees occurring as induced subgraphs of G that cover all the vertices of G. The tree cover number of G, denoted $T(G)$, is the cardinality of a minimum tree cover. It is known that the tree cover number of a graph and the maximum positive semidefinite nullity of a graph are equal for outerplanar graphs, and it was conjectured in 2011 that $T(G) \leq \mathrm{M}_+(G)$ for all graphs. In this talk we will present results on the tree cover number of outerplanar graphs. In particular, we characterize connected outerplanar graphs whose tree cover number and maximum nullity is equal to the upper bound $\left\lceil \frac{n}{2} \right\rceil$, where n is the number of vertices in the graph. (Received September 13, 2019)