Maximal outerplanar graphs whose algebraic connectivity is at most one.

The Laplacian matrix $L$ for a graph $G$ is the matrix $L = D - A$ where $D$ is the diagonal matrix of the vertex degrees and $A$ is the traditional adjacency matrix. The Laplacian matrix is positive semidefinite with eigenvalues $0 = \lambda_1 \leq \lambda_2 \leq \ldots \leq \lambda_n$. The eigenvalue $\lambda_2$ is known as the algebraic connectivity $a(G)$ of a graph. In this talk, we investigate the algebraic connectivity of maximal outerplanar graphs. We outline a proof that shows that if $G$ is a maximal outerplanar graph on $n \geq 12$ vertices, then $a(G) \leq 1$ where equality holds on exactly two maximal outerplanar graphs on 12 vertices. The proof relies heavily on vertex labellings. (Received September 07, 2016)