STEVE BUTLER, Iowa State University
Complements of coalescing sets

Given graphs H_1, H_2 with $B_1 \subseteq V(H_1), B_1 \subseteq V(H_1)$ we way that (H_1, B_1) and (H_2, B_2) are coalescing cospectral if attaching any rooted graph G onto the vertices of B_1 in H_1 and onto the vertices of B_2 in H_2 always results in cospectral graphs (with respect to some designated matrix associated with the graphs, e.g. adjacency, Laplacian, ...); we denote this by $(H_1, B_1) \sim (H_2, B_2)$. Our main result is to show that for many standard matrices (adjacency, Laplacian, signless Laplacian) that $(H_1, B_1) \sim (H_2, B_2)$ if and only if $(H_1, \overline{B_1}) \sim (H_2, \overline{B_2})$. As an application we will look at cospectral trees and non-trees for the signless Laplacian matrix.