

Meeting: 1003, Atlanta, Georgia, SS 24A, AMS Special Session on Design Theory and Graph Theory, I

1003-05-991 **Mary Ann Barbato*** (msaadi@fsc.edu), Fitchburg State College, Mathematics Department,
160 Pearl Street, Fitchburg, MA 01420-2697. *$K_{1,3}$ -subdivision Tolerance Representations of
Cycles*. Preliminary report.

Consider a simple undirected graph $G = (V, E)$. A family of subtrees, $\{S_v\}_{v \in V}$, of a tree H is called an (H, t) -representation of G provided $uv \in E$ if and only if $|V(S_u) \cap V(S_v)| \geq t$. In this paper we consider (H_m, t) -representations for cycles, where H_m is the $K_{1,3}$ -subdivision that has exactly one node x of degree three and exactly three leaves, each of distance m from x . We denote the set of (H_m, t) -representable graphs for some positive integer m , as $\mathcal{H}(t)$. We show that the maximum size of a cycle in $\mathcal{H}(t)$ is $3t - 3$ for $t \in \{3, 4, 5\}$ and is asymptotically equal to $\frac{1}{4}t^2$ for $t \geq 6$. (Received October 01, 2004)