

# Discrete Mathematics Seminar

Time: Friday, 19 September 2014, 3:00 – 4:00 PM  
Location: 237 Derrick Hall  
Title: Characterization of interior 2-caterpillars  
Speaker: Dr. Shilpa Dasgupta, Mathematics Department

## Abstract:

A 2-path is an alternating sequence of distinct 2 and 3-cliques,  $(e_o, t_1, e_1, t_2, e_2, \dots, t_p, e_p)$ , starting and ending with a 2-clique and such that  $t_i$  contains exactly two distinct 2-cliques  $e_{i-1}$  and  $e_i$  ( $1 \leq i \leq p$ ). A 2-leaf is a vertex whose neighborhood is a 2-clique. A 2-caterpillar  $P$  is a 2-tree in which the deletion of all 2-leaves results in a 2-path, called the body of  $P$ . A 2-caterpillar  $P$  is an interior 2-caterpillar if for any 2-leaf  $v$ ,  $v$  is adjacent to any interior edge  $e_i$  of any longest 2-path of  $P$ . We characterize 2-caterpillars and interior 2-caterpillars in terms of forbidden induced subgraphs and show that 2-tree unit probe interval graphs are interior 2-caterpillars. A major incentive towards this result is that later we use these results for subsequent work where we characterize 2-paths that are unit probe interval graphs.

Keywords: 2-path, 2-caterpillar, interior 2-caterpillar, unit probe interval graphs.