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**DEBSOUMYA CHAKRABORTI**, Carnegie Mellon University  
*Extremal Graphs With Local Covering Conditions*

Extremal graph theory considers problems of maximizing or minimizing graph parameters in graph classes of interest. We study a natural minimization problem: determine the minimum number of edges in an  $n$ -vertex graph such that each vertex is in a copy of a fixed graph  $H$ . Our starting point is an observation that when  $H$  is a complete graph, then the extremal graphs take a particularly nice form. We systematically study the question of which  $H$  achieve similar form, and resolve the answer for dense regular graphs  $H$  and random graphs. Joint work with Po-Shen Loh.