1058-05-100 **M Cioaba Sebastian*** (cioaba@math.udel.edu), Department of Mathematical Sciences, University of Delaware, Newark, DE 19713. *A spectral version of the degree-diameter problem.*

The spectral radius of a graph G is the largest eigenvalue of the adjacency matrix of G. In this talk, I will discuss the problem of minimizing the spectral radius of a connected graph of given number of vertices n and diameter D. When D is constant, this problem is related to the degree-diameter problem in extremal graph theory. When D is close to n or $\frac{n}{2}$, this problem is related to the problem of classifying connected graphs with small spectral radius. This is joint work with Edwin van Dam (Tilburg University, The Netherlands), Jack Koolen (POSTECH, South Korea) and Jae-Hoo Lee (University of Wisconsin, Madison). (Received February 08, 2010)