Hardy inequality and properties of the quasilinear Sturm-Liouville problem

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In this talk we discuss the connection between the Hardy inequality and quasilinear Sturm-Liouville problem (involving the *p*-Laplacian) with the weights on an unbounded interval. We show that the compactness of the embedding of weighted Sobolev space to the weighted Lebesgue space is necessary and sufficient condition for the discreteness of the set of all eigenvalues of associated Sturm-Liouville problem.