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A new approach to weighted Hardy-Rellich inequalities

In this talk, we present a new way to use the notion of Bessel pair to establish the optimal Hardy-Rellich type inequalities. We also talk about necessary and sufficient conditions on the weights for the Hardy-Rellich inequalities to hold. Symmetry and symmetry breaking properties of the Rellich type and Hardy-Rellich type inequalities will also be discussed. This is joint work with Anh Do and Guozhen Lu.