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*On the Darboux-Crum Transformation and Supersymmetric Quantum Mechanics*

In 1882, French mathematician Jean-Gaston Darboux studied the Sturm-Liouville problem, and developed what is known as the Darboux transformation. Many years later, the Supersymmetric method was developed independently to assist in solving the Schrödinger equation. Upon careful inspection the underlying mathematics beneath these methods appear to be one and the same. William Leonard Crum expanded on Darboux's result in 1955, where he considered the repeated application of the transform to generate entire classes of differential equations with exact solutions. The implications being that Crum's method may yield interesting results when applied to quantum mechanical systems. In this talk these three methods will be introduced, in addition to showing their resulting transformations when applied to the Hermite differential equation and the Hulthén potential.