Differential Representations of SL_2

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Linear differential algebraic groups (LDAGs) were introduced by P. Cassidy and are now used to find differential algebraic relations among solutions of linear differential and difference equations with parameters. This is done via the parametrized differential and difference Galois theory of P. Cassidy, C. Hardouin, and M. Singer.

The representation theory LDAGs and the knowledge of differential algebraic subgroups of a given LDAG will be used to develop algorithms that calculate Galois groups of differential and difference equations with parameters. W. Sit characterized differential algebraic subgroups of SL_2. In this talk, we will be discussing the representation theory of SL_2.