

Meeting: 1004, Bowling Green, Kentucky, SS 6A, Special Session on Representation Theory

1004-22-243 **Ronald J. Stanke*** (Ronald_Stanke@baylor.edu), Mathematics Department, Baylor University, One Bear Place #97328, Waco, TX 76798-7328, and **Mark R. Sepanski** (Mark_Sepanski@baylor.edu), Mathematics Department, Baylor University, One Bear Place #97328, Waco, TX 76798-7328. *Differential Operators, Lie Symmetries and Representations of $SL(2, \mathbf{R}) \times O(n)$* . Preliminary report.

We consider the kernels of a family of second order linear differential operators on Euclidean space. This family includes both the classical heat and Schrödinger operators. We identify certain subspaces of the kernel that are invariant under an action of the Lie symmetry group $SL(2, \mathbf{R}) \times O(n)$. A decomposition into irreducible components is provided. Finally, the structure of these irreducible components is given in terms of degenerate hypergeometric functions. (Received January 25, 2005)