Meeting: 1005, Newark, Delaware, SS 10A, Special Session on Symmetry Methods for Partial Differential Equations

1005-35-206 **Nicoleta Virginia Bila*** (`nicoleta.bila@oeaw.ac.at`), Johann Radon Institute for Computational and Applied Mathematics (RICAM), Austrian Academy of Sciences, Altenbergerstrae 69, A-4040 Linz, Austria. *Application of symmetry analysis to a PDE arising in the car windshield design.*

A new approach to parameter identification problems from the point of view of symmetry analysis theory is given. A mathematical model that arises in the design of car windshield represented by a linear second order mixed type PDE is considered. Following a particular case of the direct method (due to Clarkson and Kruskal), we introduce a method to study the group invariance between the parameter and the data. The equivalence transformations associated with this inverse problem are also found. As a consequence, the symmetry reductions relate the inverse and the direct problem and lead us to a reduced order model. (Received February 14, 2005)