GEORGE BLUMAN, University of British Columbia, Vancouver

The natural extension of Lie's reduction of order algorithm for ODES to PDEs

In the 19th Century, Sophus Lie initiated his study of continuous groups (Lie groups) to put order to the hodgepodge of heuristic techniques for solving ODEs. Lie's algorithm showed how the invariance of an ODE under a one-parameter Lie group of point transformations (point symmetry) leads systematically to its reduction of order. By looking at Lie's algorithm from a different point of view, it is shown how it extends naturally to PDEs.