ON CLASSIFICATION OF THE SECOND ORDER DIFFERENTIAL OPERATORS AND DIFFERENTIAL EQUATIONS

VALENTIN LYCHAGIN

We'll discuss a local classication of the second order linear differential operators and corresponding differential equations. Possibly Riemann ([1]) was the first who analyzed this problem and found curvature as an obstruction to transform differential operators of the second order to operators with constant coeffcients. In dimension two Laplace ([2]) found "Laplace invariants" which are relative invariants of subgroup of rescaling transformations of unknown functions and Ovsyannikov ([3]) found the corresponding invariants. All invariants for hyperbolic equations in dimension two with respect to pseudogroup transformations included also diffeomorphisms of the base manifold were found by Ibragimov ([4]). For the case of ordinary differential operators it was done by Kamran and Olver ([5]) and for the case of linear ordinary differential equations of any order relative invariants were found by Wilczynski ([6]). We are going to consider the problem in all dimensions . The talk is based on joint work with Valeriy Yumaguzhin ([7]).

Henvisninger

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