Mathematics > Differential Geometry

Transitive Lie algebras of vector fields---an overview

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This overview paper is intended as a quick introduction to Lie algebras of vector fields. Originally introduced in the late 19th century by Sophus Lie to capture symmetries of ordinary differential equations, these algebras, or infinitesimal groups, are a recurring theme in 20th-century research on Lie algebras. I will focus on so-called transitive or even primitive Lie algebras, and explain their theory due to Lie, Morozov, Dynkin, Guillemin, Sternberg, Blattner, and others. This paper gives just one, subjective overview of the subject, without trying to be exhaustive.

Comments:	20 pages, written after the Oberwolfach mini-workshop "Algebraic and Analytic Techniques for Polynomial Vector Fields", December 2010 2nd version, some minor typo's corrected and some references added
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