

Cone structures on manifolds and PDEs

Wojciech Kryński

IMPAN

Abstract

My talk will concern interactions between geometry and differential equations. Given a system of PDEs one considers its solutions and the associated characteristic varieties in the appropriate tangent bundles. In particular, for second order PDEs one gets fields of quadratic cones, which can be interpreted as conformal metrics of indefinite signature. As shown by Ferapontov and Kruglikov, a wide class of integrable second order PDEs can be characterized by the fact that the associated conformal class satisfies the Einstein-Weyl condition. I shall present their result as well as a number of generalizations involving fields of cones of higher degrees (in particular $GL(2)$ -structures and Cayley structures).