Hamilton spaces of higher order

Radu Miron, Faculty of Mathematics, “Al. I. Cusa” University, RO-2200 Iasi, Romania, rmiron@uaic.ro

Irena Ćomić, Faculty of Technical Sciences, 21000 Novi Sad, Serbia, comirena@uns.ns.ac.yu

Abstract

The theory of $Osc^k M$ was introduced and studied by the first author and his school. In the last years there have appeared several books published by Kluwer Academic Press of the first author and his coauthors. A lot of papers which examine the adapted basis, the $J$ structure, the spray theory, the curvature and torsion tensors for general, recurrent and metric connection, the Bianchi and Ricci equations etc. are appeared.

Some results in theory of curves and subspaces in $Osc^k M$ are obtained by the second author.

Some special cases of $Osc^k M$ give Lagrange space of higher order. The first attempt to obtain their dual spaces was given by the first author in several papers. This spaces differ from $Osc^k M$ in the way of transformation of the last variable.

Here the Hamilton spaces of higher order, as dual spaces of $Osc^k M$ are introduced in such a way, that $k$ variables are differentiable operators, but the transformation law of variables is similar to those in $Osc^k M$. It allows us to introduce in the Hamilton spaces of higher order the adapted basis, the special adapted basis, the $J$ structure and the spray theory in the similar way as it was introduced in $Osc^k M$.