Locally homogeneous affine connections

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The aim of this talk is to present the classification of all locally homogeneous affine connections with arbitrary torsion on two-dimensional manifolds (see [AM-K]).

Herewith, we generalize the result given by B. Opozda for torsion-less case in [Op]. Moreover, we illustrate the essential relationship between the classifications given in [K-Op-V] and [Op].

Applications of this classification has just been found. For example, see [K-V] or [CL-GR-VL].

Joint work with O. Kowalski.

[AM-K] T. Arias-Marco, O. Kowalski: *Classification of locally homogeneous affine connections with arbitrary torsion on 2-dimensional manifolds*, Monatsh. Math., 153 (1) (2008) p. 1–18.

[CL-GR-VL] E. Calvio-Louzao, E. García-Río, R. Vázquez-Lorenzo: *Riemann extensions of torsion-free connections with degenerate Ricci tensor*, preprint.

[Op] B. Opozda: *Classification of locally homogeneous connections on 2-dimensional manifolds*, Diff. Geom. Appl., 21 (2) (2004) p. 173–198.

[K-Op-V] O. Kowalski, B. Opozda, Z. Vlášek: *A classification of locally homogeneous connections on 2-dimensional manifolds via group-theoretical approach*, Central European Journal of Mathematics, 2 (1) (2004) p. 87–102.

[K-V] O. Kowalski, Z. Vlášek: *Homogeneous geodesics in homogeneous manifolds with affine connections*, to appear in Results in Math.