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Classification of Killing tensor on flat 2-manifolds

An alternative way to obtain the well known classification of Killing tensors and separable coordinates systems, on Euclidean and Minkowski planes, is given. The classification is obtained considering the whole class of transformation that preserve the type of coordinates associated to a given Killing tensor. On flat 2-manifolds, the infinitesimal generator of these transformations form an integrable distribution with rank, in a generic point, equal to the dimension of the vector space of Killing tensors. Thus the integral surfaces of the distribution can be found just looking for the loci where the rank decreases. The process is purely algebraic.