1137-20-298 **Larissa V. Sbitneva***, Av. Universidad 1001, Colonia Chamilpa, Morelos, 62210 Cuernavaca, Mexico. *On the development of smooth loops transformations theory.*

There are presented some attempts to construct the theory of transformations of smooth loops. Investigations related to Moufang loops transformations were initiated by E. Paal in the context of Moufang-Mal'tsev symmetry. Research on smooth Moufang-Mal'tsev symmetry involves the original approach of Sophus Lie to group transformations. The integrability conditions of the generalized Lie equations appear in the form of commutation relations. The study of Bol symmetries is motivated by the growing interest of physicists to Moufang transformations, due to presence of weak or hidden Moufang-Mal'tsev symmetries. For Bol loops, the representation can be treated as a Lie triple family of transformations in the sense of Yamaguti. This approach reveals that the notion of a left Bol loop and Bol-Bruck actions coincides with the (local) Nono family. We will focus on generalized Bol loops actions suggested by L. Sabinin in order to construct the infinitesimal theory. Another approach is based on the smooth right loops actions introduced by L. Sabinin. The differential equations of a strict action and the integrablity conditions give an analogue of the First y Second Lie Theorems. We emphasize the problem related to an analogue of the inverse Third Lie Theorem. (Received February 05, 2018)