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Alper Bulut* (alper.bulut@aum.edu.kw), Egaila. *K-loops arising as transversal loops from real reductive Lie groups.*

A left Bol loop satisfying the automorphic inverse property is called a K-loop. Many examples and theoretical developments have been accomplished after Ungar's famous example in 1998. He showed that Einstein's velocity addition binary operation over the set of relativistically admissible velocities form a K-loop. Kreuzer and Wefelscheid pioneered an abstract way to construct a K-loop from group transversals. Kiechle used this method to investigate many K-loop structures derived from classical groups over ordered fields. In this talk we follow Kreuzer and Wefelscheid's method to generalize Kiechle's result to linear reductive connected Lie groups via Cartan decomposition theorem, and carry some of his work from finite dimensional settings to infinite dimensional cases. (Received July 05, 2015)