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Kenneth W Johnson* (kwj1@psu.edu). *Some algebraic problems connected to random walks on loops.* Preliminary report.

A random walk on a loop Q is associated to a probability p on Q . If at a given stage of the walk it is at the element x , the probability of moving to the point y is $p(z)$ where $xz = y$. If p is constant on the conjugacy classes of Q (the orbits of the stabiliser of e), the calculations become similar to those for a random walk on a group. It is easier to analyse the situation if there is a regular subgroup in the multiplication group of Q , whose class algebra is "compatible" with that of Q .

One algebraic question coming from this situation is the following: given a loop Q , find regular subgroups of the multiplication group of Q which are "compatible" with the class algebra of Q . Calculations on small Moufang loops suggest that this problem may be interesting. There is also a general question of classifying the S-rings on a loop, generalising work on S-rings over groups. (Received August 16, 2016)