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**Finite simple automorphic loops**

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A loop  $Q$  is said to be an *automorphic loop*, or briefly an A-loop, if all inner mappings are automorphisms. The question of the existence of nonassociative (finite) simple A-loops is one of the most exciting open problems in recent loop theory. Many partial results are due to Jedlička, Vojtěchovský, Kinyon, Phillips, Kunen, Johnson and others. I will present the proof of the nonexistence of finite simple commutative A-loops. The proof is rather nice mathematics; it includes computer-aided formal computations, deep results from the theory of finite groups, and the theory of finite Lie rings.