

Doug Pickrell

Title: Homeomorphisms of a Circle and Factorization

Abstract: The set of homeomorphisms of a circle, with composition, is 'the group of symmetries of a closed string', akin to how the permutation group is 'the group of symmetries of a set', or the group of invertible  $n \times n$  matrices is 'the group of symmetries of a vector space'. In this talk I will discuss two (partially understood) factorizations for homeomorphisms, root subgroup factorization and welding, which are similar to writing a permutation as a product of transpositions and triangular factorization (or Gaussian elimination) for matrices, respectively. This is based on <https://arxiv.org/pdf/1408.5402.pdf>