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2-COLORED ARCHETYPAL PERMUTATIONS AND STRINGS OF DEGREE n

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Abstract. New notions related to permutations are introduced here. We define the string of a 2- colored permutation as a closed planar curve, the fundamental 2-colored permutation as an equivalence class related to the equivalence in strings of the 2-colored permutations. We establish an algorithm to identify the 2-colored archetypal permutations of degree n. We present a formula for the number of the 2-colored archetypal permutations of degree n. We describe all the closed planar curves with crossing number ≤ 2 using the 2-colored archetypal permutations. We also present the atlas of the 2-colored archetypal strings of degree n, $n \leq 5$.

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Key words: colored permutation group, planar curve.