Boğaziçi MATH COLLOQUIUM

Surface Homeomorphisms and Certain Algebraic Units

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Abstract:

Homeomorphisms from a compact topological surface to itself have a topological invariant associated to them known as the stretch-factor or dilatation, which is a positive real number. Logarithms of this number represent lengths of closed geodesics in the Moduli space of complete hyperbolic metrics of constant curvature on the surface, as well as the topological entropy of the homeomorphism, among other things. The precise nature of what numbers appear as stretch-factors is unknown. It is known since the 80s that the numbers are algebraic integers, units in fact, whose Galois conjugates are bounded in absolute value between the number and its reciprocal. It is conjectured that these properties characterize all stretch-factors, but this isn't known. In the talk, we will make a case for and against this conjecture, and provide interesting results along the way.

Date : Wednesday, March 15, 2023
Time: 13:30
Place: TB 130, Boğaziçi University