Sequences realizable by diffeomorphisms of closed surfaces

Dorota Chańko[1],
under the supervision of prof. Grzegorz Graff[1]

[1] *Faculty of Applied Physics and Mathematics, Gdańsk University of Technology, Poland*

A sequence of non-negative integers $(\varphi_n)_{n=1}^{\infty}$ is called realizable if there exists a map f of a set X, $f\colon X \to X$ such that φ_n is equal to the number of fixed points of the n-th iteration of f.

In [1], Windsor conducted the construction in which arbitrary realizable sequence $(\varphi_n)_{n=1}^{\infty}$ was realized by a diffeomorphism on torus. It raises the question of which sequences are realizable for different mappings on closed surfaces.

In this presentation, I will briefly describe the mentioned construction of a diffeomorphism on torus and I will discuss whether it is possible to construct similar maps on other compact 2-manifolds without boundary.

[1] A.J. Windsor, *Smoothness is not an obstruction to realizability*, Ergod. Th. & Dynam. Sys. (2008), 1037–1041 https://doi.org/10.1063/5.0158923