INVARIANT SETS FOR A FAMILY OF NON-UNIFORMLY EXPANDING SKEW PRODUCTS.

TOM WITHERS

Weierstrass' original nowhere differentiable function $W(x) = \sum_{i=0}^{n-1} \lambda^n \cos(b^n \pi x)$ for integer $b > 2$ and $\lambda \in (1/b, 1)$ is an invariant set of a skew product dynamical system on the cylinder. When we generalise this to let λ be variable we usually need $0 < \lambda^n(x) < 1$ for large n otherwise we have problems with convergence. In the talk, we will push this idea, letting $\lambda^n(x) = 1$ on periodic orbits and under careful conditions we build a family of skew products with invariant sets that are in some ways very similar to Weierstrass' functions and in others completely different.