

1040-37-118

Andres Koropec* (akoro@impa.br) and **Meysam Nassiri**. *Generic transitivity for area-preserving iterated functions systems*. Preliminary report.

We study the action of a pair (f, g) of area-preserving diffeomorphisms of the 2-sphere \mathbb{S}^2 or the annulus \mathbb{A} . Our main result generalizes a theorem of Moeckel for twist homeomorphisms. We remove the twist condition, replacing it by the more general (in fact, generic) hypotheses used by Franks and Le Calvez. As a consequence, we obtain the following:

Theorem. *For a C^r -generic pair (f, g) of area-preserving diffeomorphisms of the sphere ($r \in \mathbb{N} \cup \{\infty\}$), the action of the free semigroup generated by $\{f, g\}$ has a dense orbit. In particular, the iterated functions system is transitive.*

We remark that for a single diffeomorphism, generic transitivity does not hold because of the KAM phenomenon. We will discuss the version of this theorem for arbitrary compact surfaces as well. (Received January 30, 2008)