Absolutely Continuous Invariant measures for non-autonomous dynamical systems

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We consider the non-autonomous dynamical system $\{\tau_n\}$, where τ_n

is a map of a compact metric space X. We assume that τ_n converge uniformly to a continuous map τ.

After generalizing the Krylov-Bogoliubov Theorem and Straube's Theorem to the non-autonomous

setting, we prove that under certain conditions the limit map τ of a non-autonomous sequence

of maps τ_n with acims has an acim.

Rings of Saturn

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We present the results of numerical study of the system

$$\theta_{n+1} = \theta_n + 2\pi(\sigma/r_n)^{3/2},$$

$$r_{n+1} = 2r_n - r_{n-1} - a\cos(\theta_n)/(r_n - \sigma)^2,$$

where $\sigma=185.7$ and $a=17$. This system describes movement of particles in the Saturn's rings.