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Chaotic orbit effects in a stationary single particle probabilistic density[1] SHUN OGAWA, XAVIER LEONCINI, MICHEL VITTOT, Aix-Marseille Univ., Univ. Toulon, CNRS, CPT, GUILHEM DIF-PRADALIER, XAVIER GARBET, CEA, IRFM — Chaotic particle orbit effects in a stationary density function or macroscopic quantities are investigated. A considered field consists with static magnetic field and null electric field in a cylinder, then a test particle is driven by the Lorentz force. We firstly consider an axisymmetric magnetic field, where three integrals of motion coexist. So that the test particle motion is completely integrable, and its Hamiltonian is reduced to an effective one degree of freedom Hamiltonian. For some initial states, the effective potential of this reduced Hamiltonian has a saddle point and a separatrix bringing about some chaos when a perturbation is added to the magnetic field. We investigate how this chaos modifies the stationary density function.

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