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Dynamics of a charged Kapitza's pendulum interacting with radiation in thermal equilibrium JORGE HERNANDEZ GOMEZ, PAULINA PRADEL SOTO, Facultad de Ciencias, Universidad Nacional Autonoma de Mexico — The considered system is a Kapitza's pendulum that consists of a disk that spins at constant angular velocity, from which edge is attached a massless rigid rod with an electrically charged bob. The system is studied theoretically and experimentally. The motion equations are settled and solved both, analytically under the small oscillation assumption considering the interaction of the system with black body radiation as a perturbation, and in the general case using numerical algorithms. The pendulum's dynamics is studied varying both initial conditions and parameters in small steps. In order to identify regions of stable and chaotic motion, Lyapunov's exponents are calculated. Phase and configuration spaces are plotted to notice periodical and erratic behaviors. Poincare sections and fast Fourier transforms are obtained to identify resonance cases.

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