A simple model for the magnetic polarity change

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A b s t r a c t : When an electron is in motion, it generates a magnetic field. The simplest type of magnetic moment is that of magnetic dipoles, generated by elementary current loops. Let the loop be represented by a circular motion of an electron in an external toroidal magnetic field. If such a system exhibits rotation about a fixed axis, the motion of electron is governed by the Lorentz and Coriolis forces. We show that these forces may cause a periodic variation in the direction of azimuthal velocity component, and hence the magnetic dipole polarity.